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Longmans' Madras Series

GEOGRAPHY

OF THE

MADRAS PRESIDENCY

BY

R. M. COLLART
St. Joseph's College, Bangalore

2- JUN 1922

With a Coloured Physical Map and 30 Black and White Maps and Pictures

LONGMANS, GREEN & CO.
167 MOUNT ROAD, MADRAS
BOMBAY CALCUTTA
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PREFACE

THE author of this little book, Rev. Fr. R. M. Collart, has for many years been teaching Geography with enthusiasm and skill to pupils of all grades in a big European School. I know no one in South India who has put so much system into his work, or so well combined human interest, practical work and scientific reasoning in his daily teaching. He has here endeavoured to give succinctly, what it is possible for pupils of the Fifth Standard of a European School, and the Fifth Class of an Indian Secondary School, to learn about the part of India in which they live. The lessons contained in the book are, in fact, the substance of what he has taught for several years in the Primary Department of the school in which he is engaged.

It is as well to emphasize the fact that no text-book such as this can do more than suggest the material. The ways and means of studying it are too various to be included in a small book. The teacher must himself provide these ways and means, even as Fr. Collart has done in his large and admirably arranged Geographical Museum, from which he obtains material for geographical investigation. In his introduction that follows, he has briefly suggested some of the possibilities open to a keen teacher, and, in an appendix to his little book, has given typical exercises, which will be multiplied in daily work by the teacher of zeal and ability.

December, 1921. J. A. YATES.

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INTRODUCTION

A FEW maps have been added to the work; but the author would like to suggest to teachers, who adopt this book, to make use of many blank maps, large and small, which should be drawn before the lesson, in order to insert in them only such features as occur during the lesson, thus avoiding overcrowded maps. These should be kept afterwards in book form and often referred to in revision work. If the maps were drawn on transparent paper, they could be super-imposed, thus enabling children to see the relation of one map to the other, and the connection of cause and effect.

Statistical statements, such as temperature, rainfall, density of population, etc., should not be overlooked, as considerable knowledge may be gained from them, when represented in a striking manner by **coloured** diagrams.

The author has also found by experience that the use of post cards, photographs, relief models made of papier-mâchè, geological and industrial specimens, home-made lantern slides add greatly to the interest, and their judicious use cannot be over-estimated.

In conclusion the author wishes to express his warmest thanks to all those who have so kindly made useful suggestions, and to Mr. E. Doveton for permission to reproduce several photographs.

December, 1921. R.M.C.

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2- JUN 1922
MADRAS

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The Madras Presidency

PART I

GENERAL GEOGRAPHY

CHAPTER I—INTRODUCTORY

Position and Extent

The Madras Presidency lies mostly in the east and south of India, having an extensive coast-line, stretching from Chilka Lake (19° 30′ N.), to Cape Comorin (8° N.). On the western side, the coast is much shorter, for, if we do not take into consideration the Protected States of Travancore and Cochin, we have only 300 miles of coast along the districts of Malabar and South Canara.

The Madras Presidency proper is bounded on the North by Bihar and Orissa, the Central Provinces and the Nizam's Dominions; on the East, by the Bay of Bengal; on the South, by Palk Strait and the Gulf of Mannar; and on the West by the Native States of Travancore and Cochin, the Arabian Sea, the Mysore State, and part of the Bombay Presidency. We thus see that, including the Protected States, the Presidency embraces the whole of Southern India.

The most northerly point is Chilka Lake, and the most southerly, Cape Comorin, a distance of about 940 miles, as the crow flies. The greatest breadth is to be found between the western boundary of the district of Bellary along the Tungabhadra river and the mouth of the Pennar, a distance of over 300 miles.

Excluding the States of Coorg, Cochin, Travancore, and Mysore, the Madras Presidency has an area of 143,220 sq. miles.

CHAPTER II—THE COAST

As a rule, the coast is low and sandy, being rocky in very few places. Being very regular, it has no indentations or creeks. The sea is very shallow all around, hence we must infer that there are no good natural harbours and that ships must anchor far out at sea, transport to or from the mainland being effected by native boats, and occasionally by steam-launches.

The only important features of the east coast are: Chilka Lake and Pulicat Lake, really two shallow lagoons on the banks of which much salt is made, and the flat sandy headland of Calimere. A chain of rocks, known as Adam's Bridge, connects the mainland with the island of Ceylon.

The west coast is still more regular than the east coast, and in several places it is high and rocky. Here also we find no natural harbours. In the State of Travancore, a narrow tongue of land separates the sea-shore from the beautiful backwaters, some being over a hundred miles long. Off the Malabar coast are the Laccadive islands, consisting of five separate groups of coral islands.

A coastal voyage from Bombay will give us a fair idea of the outline of our Presidency. Sailing along the west coast of the Bombay Presidency, we find that the mountains known as the Western Ghats rise steeply from the narrow coastal plain. This great rampart, we are told, will be in view till we reach the southern tip of India. Goa and Mormugao are passed, and 150 miles farther south, we steam off Mangalore, the first town of importance we meet in our Presidency. It is the terminus of a railway following the west coast, after passing through the Palghat Gap. About a hundred miles to the west are the Laccadives, a group of coral islands, supporting a scanty population chiefly engaged in the preparation of

coir. Cannanore also lies on the same railway. A few miles to the south is the French settlement of Mahe; then Calicut, a town which has given its name to a kind of cotton cloth called 'calico'. At each of these calling-places, we meet steamers loading cargoes of teak, coffee, sandalwood, ground-nuts, coir, copra, and mats manufactured in the towns and villages buried in groves of cocoanut trees. Nowhere do we anchor near the coast, owing to the shallowness of the sea, and the violence of the surf: barges and light boats bring the various products to our ship.

During the South-West monsoon (May to October), the roadsteads are unsafe, for the wind is strong, and waves dash against the shores with great velocity and force.

Ninety miles to the south is Cochin, at the head of a system of backwaters connected by canals, thus assuring water communication between this town and Trivandrum in the State of Travancore. Cochin has ship-building yards and is connected by railway with Shoranur, on the main line from Madras to Mangalore. Alleppey, Quilon, and Trivandrum are successively passed before we sight Cape Comorin, the most southerly point of the peninsula.

The shortest route to Calcutta would be through the Gulf of Mannar and Palk Strait, but it is a dangerous passage, for the water is shallow and navigation is impeded by a ridge or rocks known as Adam's Bridge, almost stretching from one shore to the other; so we steer towards Colombo, on the western coast of Ceylon. Colombo is a calling-place on all the routes between Europe, Australia, and the Far East. Tea, rubber, wool, rice, and timber form the chief cargo of the many ships lying at anchor behind a great breakwater.

We are off again, the next day, and skirt the shores of the island, catching a glimpse of Adam's Peak, above the

luxuriant vegetation. Point Calimere and its lighthouse are the next landmarks we sight in our Province. Then comes the low and swampy delta of the Cauvery with Negapatam and the French settlement of Karikal. From the deck we are able to see numerous paddy-fields, and in the roadsteads, flat-bottomed boats go to and fro, laden with rice from the delta, betel-nuts from Ceylon, and sugar from Java.

Pondicherry, seventy miles further north, has a great trade in ground-nuts, and many people are engaged in the cotton mills we see near the shore.

Near the mouth of the Palar are the Seven Pagodas, two of which are on the sea-shore, the others are supposed to have been submerged by the sea. Thirty-five miles to the north we find the good artificial harbour of Madras. Steamers from Burma bring there large quantities of rice. Oil, hides, skins, ground-nuts, and cotton are loaded. But we shall not be detained by this city which we may visit later. Sloping our course to the N.-N.-E., we see far away, the low, and faint line of the Eastern Ghats, with a wide stretch of plains between their base and the flat, sandy shore of the Bay of Bengal. Pulicat Lake, in the district of Nellore, is merely a shallow backwater. Masulipatam lies on one of the mouths of the river Kistna, and Cocanada is not very far from the delta of the Godavari. As we proceed, we sight a bold rock known as the Dolphin's Nose, sheltering Vizagapatam. Chilka Lake, the most northerly point in the Presidency, is another lagoon, close to the delta of the Mahanadi. We then say good-bye to our Province and steer towards the Hugli, the busy thoroughfare leading to Calcutta, the terminus of our sea voyage.

CHAPTER III—THE BUILD

I. THE MOUNTAINS

If we examine the physical map, or a relief model of Southern India, we soon see that the two main mountain systems are the Western and the Eastern Ghats enclosing the large tableland of the Deccan ending in the plateau of Mysore. These two ranges unite in the Nilgiri Hills, and are continued to the south, as far as Cape Comorin. As they run along the coast, they throw spurs inland, which often form the divides between our various river basins.

(*a*) **The Western Ghats** commence in the Bombay Presidency, and extend along the western coast through South Canara, Coorg, Malabar, Cochin and Travancore to end at Cape Comorin. This range, on an average, between 4,000 to 5,000 ft. high, is not exactly a single rampart, as it seemed to us in our coastal trip; several ranges run parallel to each other, leaving narrow valleys between them. The main range is unbroken, save for the passes, which afford communication between the west and the interior. Between the districts of Coimbatore and Malabar, is the Palghat Gap, sixteen miles wide, which gives easy communication between the plains of the east and the west. Farther south, in Travancore, the mountains may be crossed by means of the Ariyankavu Pass.

Although we said that the Western Ghats are on an average 4,000 to 5,000 ft. high, there are parts which greatly exceed this height. Anaimudi (8,837 ft.) is the highest peak in Southern India, a pygmy, however, when we compare it with the giants of the Himalayas. Kudremukh, in South Canara (6,215 ft.), and Dodabetta (8,760 ft.), are among the highest summits of this chain.

South of the Palghat Gap are several ranges, such as the Anamalais, where numerous elephants are caught by the hill tribes. These are continued farther south by the

Cardamon and Peermade Hills. From Anaimudi runs to the N.-E. a range of hills, known as the Palni Hills, divided into two sections, between which lies, at an altitude of 7,200 ft., the hill-station of Kodaikanal.

The Nilgiris or Blue Mountains lie at the junction of the Eastern with the Western Ghats; they are reached by a mountain railway running from Mettupalaiyam to Ootacamund, the summer head-quarters of the Madras Government.

(*b*) **The Eastern Ghats** are small dissected ranges beginning in Orissa, and running through the coastal districts between Ganjam and the Nilgiri. They are quite unlike the Western Ghats. First of all, they lie farther away from the sea-shore, except in the north, and are broken in many places, giving passage to the rivers from the Deccan plateau. On an average, they are about 2,000 ft. high, and no peak is above 6,000 ft. One of the highest and most striking summits is found in the district of Ganjam (Mahendragiri, 4,923 ft.).

As they run southwards, they are further away from the coast, leaving between their base and the sea-shore a stretch of country that is sometimes 150 miles in width. Many of its spurs run westwards towards the interior. In Ganjam they are known as the Maliahs, where there are sulphur springs at Taptapani. In Vizagapatam are the Jeypore Hills and in Kurnool the Red and Black Hills. These mountainous portions are included in the 'Agencies,' and are inhabited by wild tribes.

The Palkonda Hills, in Anantapur, have excellent pasturages. In North Arcot are the Javadi and Nagari Hills; near Salem another spur is known as the Shevaroy, whilst in Trichinopoly are the Trichimalais.

II. THE PLAINS

(*a*) **The East Coast Plain.** Along the eastern slopes of

the Eastern Ghats, and stretching from the very north of the Province to Cape Comorin in the south, is at first, a narrow strip of land, for there, the mountains run close to the coast, but as they recede further inland towards the middle and the south, the plain broadens out and in parts reaches a width varying from 100 to 150 miles. Branches of this plain run far inland through the valleys of the principal rivers flowing into the Bay of Bengal. This plain is known as the Northern Circars in Ganjam, Vizagapatam, Guntur, Godavari and Kistna. The rest, in Nellore and South Arcot is called the Carnatic, and the southern part, the Coromandel. Generally speaking, the name Coromandel is applied to the whole coast of our Presidency washed by the Bay of Bengal.

(*b*) **The Western Coast** or Malabar Coast is narrow and includes the Native States of Travancore and Cochin and the districts of South Canara and Malabar. Communication between this plain and the interior is possible only through the passes or 'ghats' already mentioned.

(*c*) **The Deccan Tableland**, which extends farther north than our Province, is continued in the south by the plateau of Mysore. This plateau is of volcanic formation in the west and the lava which once covered it has formed in several parts a rich black soil retentive of moisture. In the east and south the old rocks are mixed up with younger ones, such as limestone, gravel, and sandstone. This plateau slopes gently to the east, thus causing the rivers to flow into the Bay of Bengal.

CHAPTER IV—RIVERS

We have already said that the Western Ghats form the great divide or watershed between the rivers flowing into the Bay of Bengal and those flowing into the Arabian Sea. As these mountains lie quite close to the Malabar coast,

we can infer that the western rivers will be short and rapid, while those rising on their eastern slopes will be long and sluggish.

FIG. 2—GERSOPPA FALLS, SHARAVATI

I. RIVERS FLOWING INTO THE ARABIAN SEA

On the borders of Mysore and the Bombay Presidency is the Sharvati river, whose chief feature is the Gersoppa Falls, which can compete with all others in the world, not for the volume of water, but for their height and beauty. The river hurls itself down a narrow gorge from a height of 830 ft. in four cascades.

In South Canara are the Netravati, the Chandragiri and the Gurpur; the Beypore and Ponnani in Malabar and the Periyar in the State of Travancore. Most of these rivers are used during the monsoon to float down the timber

from the forests of the Western Ghats; others communicate with the extensive system of backwaters which we will study in the chapter on communication.

FIG. 3—THE GODAVARI GORGE

II. RIVERS FLOWING INTO THE BAY OF BENGAL

A glance at the map of the Presidency will show that the rivers in the northern part have very long courses and much wider basins than those of the southern part. We shall now study the most important of these streams, making only a mention of others. As a rule, the rivers of the Presidency are of very little use for navigation as their volume of water varies greatly with the seasons; besides their courses are often impeded by falls and rapids. It is only after they have broken through the Eastern Ghats that they may be of some use for navigation.

(*a*) **The Godavari** rises in the Bombay Presidency, in the district of Nasik, famous for its pilgrimages. For

about 400 miles it flows through the State of Hyderabad, receiving successively the Pranhita on its left bank, and the Manjira on the right. It forms the boundary between this State and the Godavari district in our Province, and is joined by the Sabari. On reaching the Eastern Ghats, it cuts its way through this mountainous rims by a deep, narrow, and picturesque gorge, and enters the plain of the Northern Circars, dividing into two main branches near Rajahmundry to reach the Bay of Bengal by seven mouths after a course of 900 miles. The most northern branch called Gautami-Godavari passes Yanam, a French settlement. This river is held sacred by the Hindus, and on its banks, especially near the source and the delta, are many bathing ghats, shrines and temples.

(*b*) **The Kistna** or Krishna rises also in the Western Ghats, in the Bombay Presidency, north-east of Mahableshwar, and enters the southern part of the State of Hyderabad, receiving on the left the Bhima, and on the right bank a tributary flowing along the northern boundary of the Madras Presidency: the Tungabhadra, which is formed by the union of the Tunga and the Bhadra both rising in Mysore. The stream is the great feeder of a huge reservoir called the Mari-Kanave.

The course of the main stream is now altered from S.-S.-W. to the N.-N.-E. by the Nallamalai's Hills, and, like the Godavari, it forces its way through the Eastern Ghats by a narrow gorge. Turning now sharply to the S.-E. and flowing between the districts of Kistna and Guntur, it passes Bezwada and divides into two branches, and reaches the sea near Masulipatam after a course of 800 miles. Note in the map the Colair Lake, whose area varies greatly with the seasons. It is an expanse of fresh water exceeding, during the N.-E. monsoon, 100 sq.miles, but shrinking considerably during the hot season.

(*c*) **As we proceed** farther south we meet the **North Pennar**, rising in Mysore, near the Nundi Hills, and flowing through the districts of Cuddapah and Nellore. The gorge of Gandikota is justly described as one of the most picturesque river-passes in India, and its beauty is only excelled by the gorge of the river Kistna. The Pennar enters the Bay of Bengal near Nellore.

(*d*) **The other rivers** of less importance along this coast are the **Palar**, supplying the Kolar Gold Fields with all the water necessary for the washing of the gold. It passes through Arcot and Chingleput, entering the sea at Sadras.

At Cuddalore is the **Ponnaiyar**, flowing through Mysore, Salem and South Arcot. This river, like the Godavari, is held as sacred, for it is believed to derive its water from the Ganges.

The **Vellar** rising in Salem forms the boundary between the districts of Trichinopoly and South Arcot and empties itself into the Bay of Bengal at Porto Novo.

(*e*) **The Cauvery** is supposed to have a divine origin, and bathing ghats are of frequent occurrence on its banks. One branch rises in Brahmagiri, in the mountainous province of Coorg which it traverses, and flows across the Mysore tableland, passing through narrow gorges below which it is joined by the Tirumakuddu at Narsipur. Two of its branches enclose the historical island of Seringapatam. At Sivasamudram are the double far-famed Cauvery Falls, which supply light power to the gold mines of Kolar. The stream now enters the Madras Presidency, forming the boundary between the districts of Salem and Coimbatore. In the Trichinopoly district it is much tapped for irrigation purposes. Below the town an anicut has been built, and the river divides into two main branches, of which the most important is the Coleroon which has made the district of Tanjore the 'Garden of South India';

it enters the Bay of Bengal near Devikotta and Chidambaram. Its chief tributaries are : the Bhavani, the Noyil on the right bank, and the Shimsha on the left.

(*f*) **The other rivers** of the southernmost part of the peninsula are the **Vaigai**, passing through Madura and flowing into Palk Strait at Ramnad, then the **Tambraparni**, flowing into the gulf of Mannar.

CHAPTER V—CLIMATE

A. Temperature

Note.—**In every class, a weather chart of the type given in the appendix of this book could be kept as a class record. The greatest interest will be raised, if each student takes the readings from instruments exposed in a suitable spot in the school premises.**

Before making a special study of this chapter, we must at first, be well acquainted with two words which are generally confused by the boys and girls—climate and weather.

Weather is the condition of the atmosphere (clouds, winds, heat, rain, etc.) on a certain day.

Climate is the average condition of the atmosphere for a certain period, say about twenty years.

A climate is said to be **continental** when it is subject to extremes, when the **range of temperature**, that is, when the difference between the highest temperature and the lowest, is great. Should the range be small, it is said to be **oceanic or insular**.

Now, what influences the climate of a place ? Several factors, such as latitude, elevation, distance from the sea, prevailing winds, will greatly affect the climate of a given country, as we shall see throughout this chapter, in examining these factors one by one, before studying the particular climate of our Province.

(*a*) **Latitude**. It is evident that the farther away we go from the Equator, the colder it is, for the sun's rays, falling more slantingly, give less heat. It is a fact of experience that people living in Siberia are clad in warmer clothes than the people of India.

(*b*) **Elevation** is another important factor, and we all know that the higher we go, the colder it is; see, for instance, how warmly the pilot of an aeroplane is dressed. Elevation has a great moderating influence, even in tropical lands like India, and people from the plains seek the cool of the Nilgiri, Palni, and Shevaroy Hills in the hot season.

(*c*) **Warm a plate** full of sand and one full of water; you will notice that the former gets hot more quickly than the latter; but allow them to cool, and you will see that the sand loses its heat sooner than the water. This occurs on a larger scale on land and at sea. When the former is hot, the latter has a tendency to moderate the heat of the land; of course, in tropical lands, the effect is not so much felt as it is in temperate countries; but the presence of the sea causes moist sea-breezes which render the heat of the low coastal regions less unbearable than it would be otherwise.

(*d*) **The direction of the prevailing winds** is perhaps the most important factor; for if the winds blow over large tracts of land, they will be warmer and drier than if they blow over the sea.

Being in possession of such facts, we are now able to proceed with the study of the climate of the Madras Presidency.

As the whole of our Province is within the Tropics, we can say, generally speaking, that its climate is marked by great heat and that the inland parts experience a continental climate with great dryness, except where elevation makes up for latitude, as in the Nilgiri Hills, where

Wellington has an average temperature of 62° F., while Tinnevelly in the plains registers an average temperature of over 85° F. We may classify the climate of the Madras Presidency as follows :—

(*a*) **The first season** (December-February) is a season of **cold weather**, especially on the hills and the interior plateau. At this time the hottest districts are the south-eastern.

(*b*) **Hot weather** prevails everywhere, more especially in the lowlands, from March to the end of May. The last portion of this season is generally marked by thunderstorms, the forerunners of the S.-W. monsoon. The greatest heat is found in the Ceded districts and the Deccan, where Cuddapah registers an average mean temperature of over 94° F. Note also that at this time the sun's rays are more or less perpendicular.

(*c*) **From the beginning** of June to the beginning of October we have the **S.-W. monsoon**, which brings relief to the western strip of coast and the western part of the interior tableland. The eastern portion of the Presidency suffers from great heat, as the winds from the west are land winds warmed by their passage over the interior. Since India tapers towards the south, the heat increases as we pass northwards along the coast.

(*d*) **From October the N.-E. Monsoon** begins and now moderates the climate of the east coast and the interior tablelands. At this time the west coast is warmer than the east.

The following table, given here for reference, will serve to illustrate what we have studied previously, and the pupils should, as far as possible, account for the figures given below.

Places	Latit.	Longit.	Height	Mean Temperatures			
				Jan.	May	July	Nov.
Madras ...	13° 4′ N	80° 4′ E	22′	76°2F.	89°6F.	87°3F.	76°7F.
Ootacamund ...	11°24′ N	76°44′ E	7327′	54° F.	61°3F.	56°9F.	55°4F.
Masulipatam ...	16° 9′ N	81°11′ E	15′	73°6F.	89°8F.	83°9F.	74°9F.
Negapatam ...	10°46′ N	79°53′ E	31′	75°5F.	87°7F.	85°6F.	78°3F.
Bangalore ...	12°45′ N	77°35′ E	3013′	67°5F.	78°5F.	72° F.	69°6F.
Bellary ...	15° 9′ N	76°57′ E	1475′	73°2F.	89° F.	80°9F.	75°3F.
Calicut ...	11°15′ N	75°49′ E	27′	77°8F.	83°1F.	76°7F.	79°5F.

B. Rainfall

Rainfall greatly depends on temperature, elevation, the direction of prevailing winds and proximity to the sea.

(*a*) **Temperature**. If we look at a map showing the rainfall of the world, we notice that the areas near the Equator have a much heavier rainfall than the countries in the Temperate Zone. This is simply due to the amount of evaporation in these zones.

(*b*) **Elevation**. This factor may be found difficult to understand at first sight. But if we observe what is going on when we inflate the tyre of a bicycle and when we suddenly open the valve, we notice that in the former case, that the air blown in is warm, whereas in the second case it is cold. We say that in pumping, air becomes compressed and warm, while it becomes chilled when we allow the air to escape and expand. Likewise, the currents of air which are forced to ascend high regions must become cold by expansion and by contact with the cold layers of the upper atmosphere.

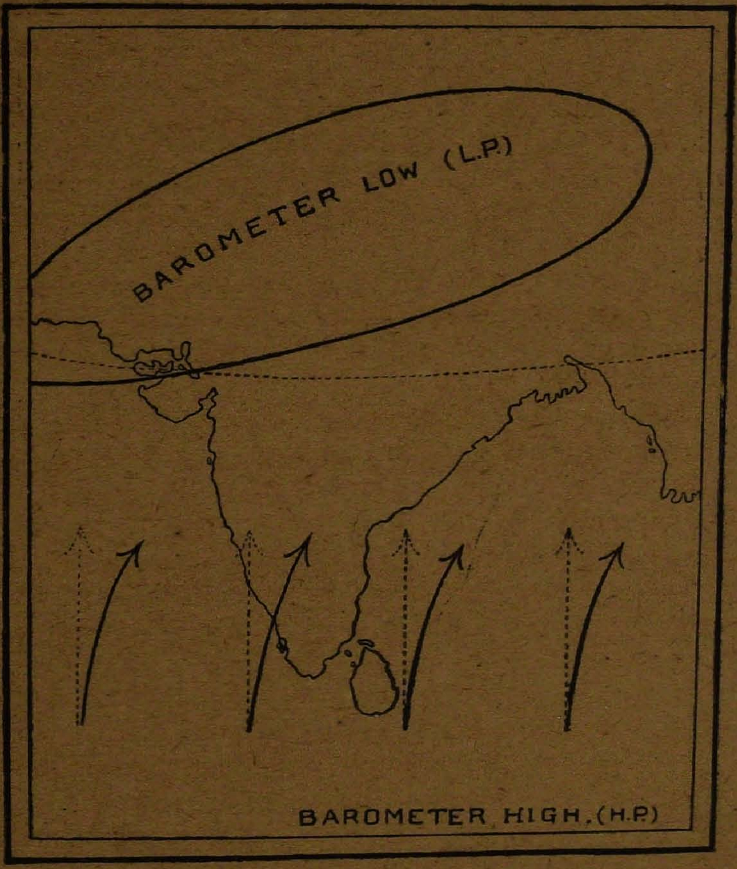
(*c*) **If winds** blow at right angles to a chain of mountains, they will bring more moisture, especially when they come from the sea, than if they blow parallel to the mountain axis. In the first case, the moisture-laden winds

will be forced upwards and chilled, thus departing with their moisture in the same way that steam is changed into water when cooled. When the winds come down the opposite slopes of the mountains, they become compressed by all the other layers of air, and blow as dry and warm winds. We thus see that mountains and the direction of the wind play a great part in the rainfall of a country, and that mountain chains have a dry side and a wet side.

The chief features of the Indian climate are the monsoons: the S.-W. monsoon blowing from the beginning of June to the first week of October; and the N.-E. monsoon blowing from the second week of October to the third week of December. To understand the mechanism of these monsoons, the student must be already familiar with the apparent path of the sun through the heavens from Tropic to Tropic.

In June the sun is throwing its rays vertically over the Tropic of Cancer, and as vertical rays are the hottest, the northern part of India is warmer than the southern and the surrounding seas. The hot air over the Tropic rises, and the cold air from the Arabian Sea sets in and blows towards the areas where the light, rising air has determined a centre of light or **low pressure**. Air, like water, goes always from a centre of high pressure to a centre of low pressure. Were it not for the rotation of the earth, we should then have in June a south monsoon (winds are named according to the direction from which they blow). Owing to this rotation from west to east, the winds are deflected to the right of their path and become south-west winds. This current strikes first our west coast almost at right-angles, and, being forced up by the Western Ghats, they discharge most of their moisture on the western plains and on the mountains themselves. An average rainfall of over 120 inches in this area is not at all uncommon, as one may see in the table given at the end of this chapter. The

S.-W. monsoon divides into two branches : one striking the Malabar coast, and the other sweeping past Colombo and the Bay of Bengal to Assam, where Cherrapunji registers an annual rainfall of about 500 inches.

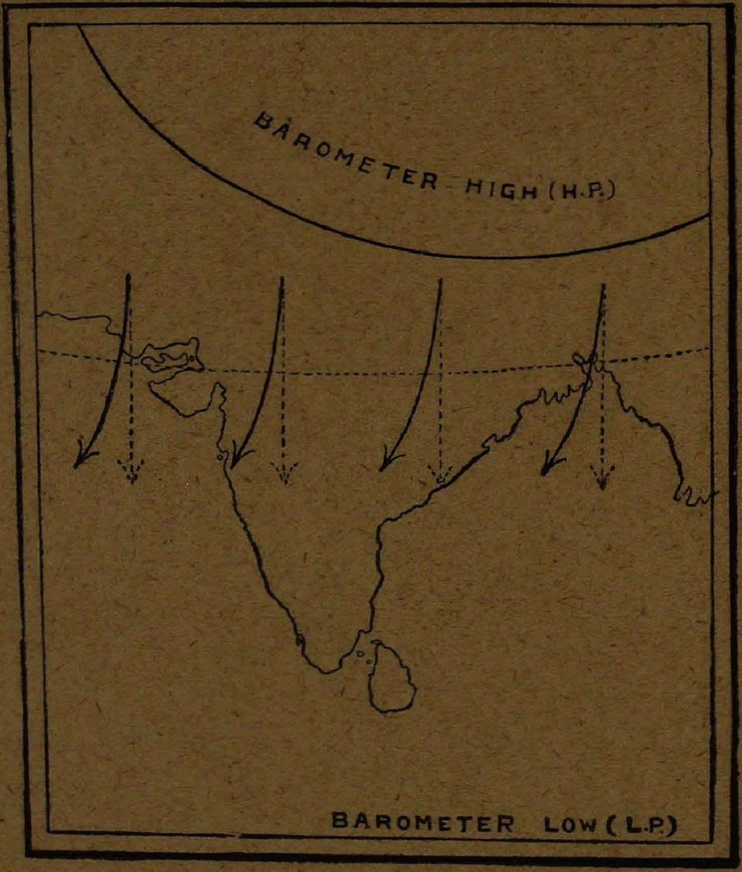


THE S-W MONSOON

FIG. 4

The N.-E. monsoon sets in at the beginning of October. At this time of the year the sun shines vertically south of

the Equator; it is the southern summer and the southern part of the Indian Ocean is warmer than Central Asia, where the pressure is high, the air being cold. Hence, winds will blow from the north towards the areas of low



THE N-E MONSOON

FIG. 5

pressure in the vicinity of the Tropic of Capricorn. As in the case of the S.-W. monsoon, these winds are deflected

to the right of their path, thus blowing from the N.-E. This monsoon strikes the Eastern Ghats and gives more rain to the east coast, and, as these ranges are not very high and are broken by the valleys from the interior, many

FIG. 6

clouds can pass over and through the many gaps, following the valleys of the Godavari, Kistna, Cauvery and other

rivers, giving their moisture on the interior plateaux. The rainfall is, of course, heavy in the east and decreases as one travels westward.

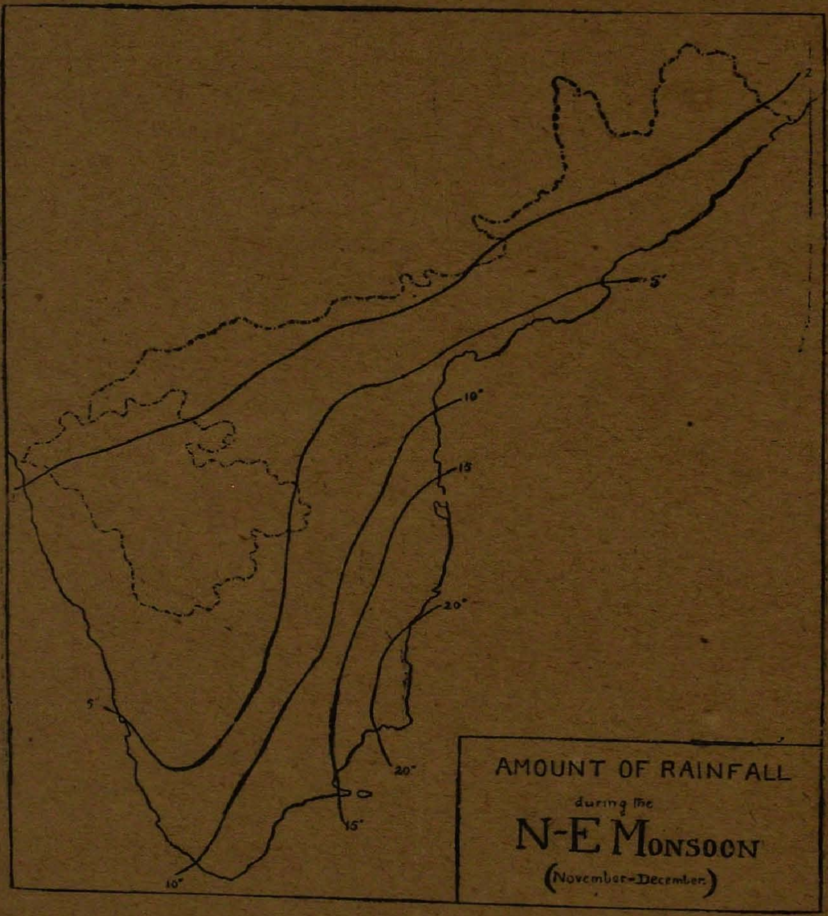


FIG. 7

The N.-E. monsoon is generally marked by cyclones over the Bay of Bengal. These cyclones are winds blowing in a spiral way and are often destructive. Cyclonic

weather is accompanied by violent gales, great cloudiness and rain. Besides these two well-marked seasons, there are in the Presidency some occasional showers which are highly beneficial to agriculture, for they either allow the farmers to plough their fields, or cause the fruit-trees to blossom. About January 14 we have the **Pongal showers**, and the blossom or **mango showers** in March.

Rainfall is measured in every station by means of the rain gauge, an instrument of easy make, which together with a thermometer maximum and minimum and a barometer will help to keep weather-charts in the school.

AVERAGE RAINFALL, FOR 25 YEARS

Station	Height.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov	Dec.	Total.
Madras ...	22'	0·50	0·31	0·18	0·48	1·64	2·12	3·90	5·13	4·93	11·14	13·97	6·20	50·51
Ootacamund ...	7327'	0·35	0·38	1·00	3·46	5·93	6·18	5·94	4·70	4·44	8·57	4·00	1·65	46·60
Masulipatam ...	15'	0·17	0·16	0·26	0·40	1·34	4·33	5·67	6·09	6·56	8·36	4·43	0·53	38·30
Negapatam ...	31'	1·15	0·72	0·32	1·02	1·81	1·30	1·74	3·29	3·55	10·08	15·02	11·23	51·23
Bangalore ...	3013'	0·06	0·22	0·72	1·19	4·53	3·13	4·13	6·00	7·11	6·74	2·61	0·39	36·83
Bellary ...	1475'	0·10	0·03	0·42	0·83	1·93	1·84	1·41	2·18	4·12	4·04	1·20	0·20	18·30
Calicut ...	27'	0·18	0·16	0·57	4·28	9·74	35·77	27·91	16·32	7·67	10·50	4·66	1·05	118·81
Kodaikanal ...	7·688'	1·17	1·48	3·59	5·29	6·47	4·01	3·89	5·99	6·70	12·49	8·17	5·57	64·82

CHAPTER VI—VEGETATION

Factors influencing the vegetation. Sunlight is necessary to the assimilation of food by plants, so that growth is

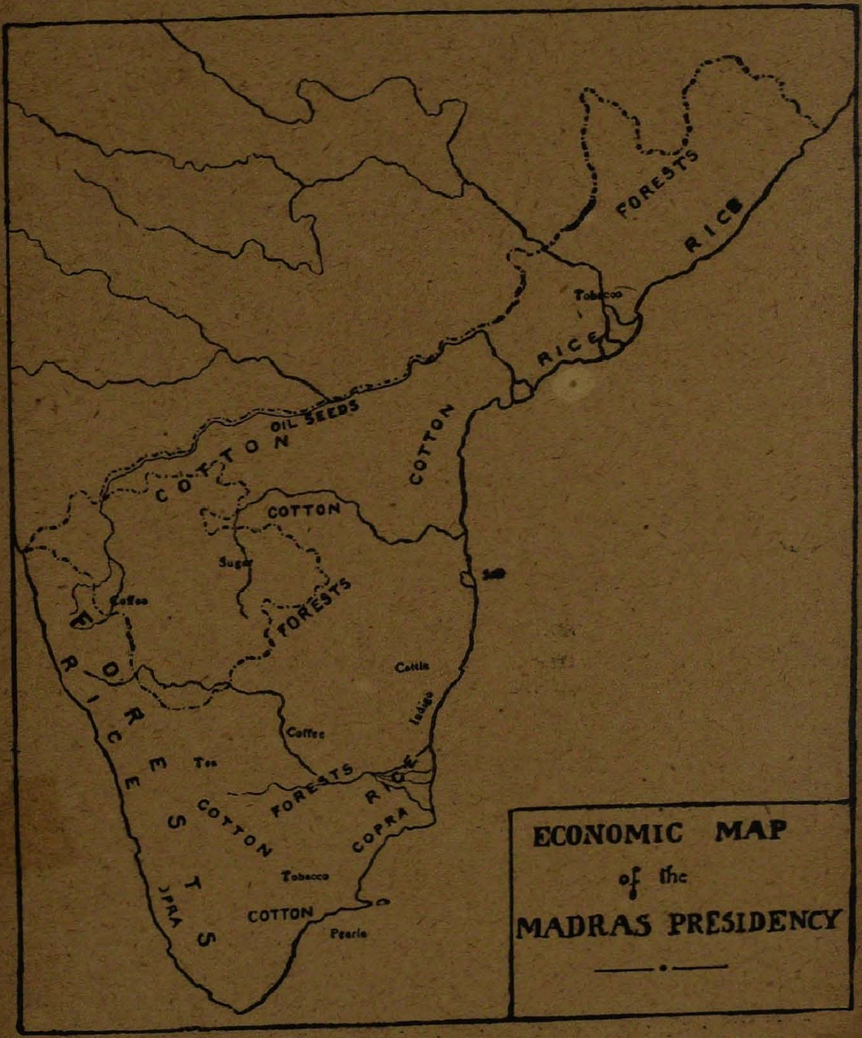


FIG. 8

continuous during daylight. This partly explains the extraordinary growth where the summer days are very long ; besides intense light gives very bright colours.

Moisture which contains food in solution is absorbed and then given off as vapour. Trees and shrubs get most of their moisture from the sub-soil, and grasses obtain it from the surface of the soil.

Forests require more constant moisture than any other plants, for the growth of trees is slow ; a minimum of 30 inches of rain is required, and a temperature ranging from 60° F. to 80° F. according to the species grown. There are forests in most of the districts of the Madras Presidency, but mostly on the **windward** slopes of the Western Ghats, teak and rosewood being the chief trees. The felling of trees is an important occupation, previous to the breaking of the monsoon. Then as soon as the rivers swell up, the logs are floated down to the nearest saw-mills. Kallai, in the district of Malabar, is an important lumber centre. In Coimbatore and the province of Coorg, large areas are devoted to the cultivation of sandal. The sal tree is chiefly found in the northern district of Ganjam. Elsewhere the trees belong to different species, such as the myrabolam, the jak, the banyan, fig trees, etc.

Europeans have imported from Australia the eucalyptus tree which grows so well on the the upper slopes of the Nilgiri Hills. European trees, such as the oak, pine, fir have also been introduced, but these do not attain the degree of growth they reach in Europe and in more temperate countries. The lower parts of the hills and mountains are often covered with dense and almost impenetrable jungle and thickets of bamboo, which are the homes of wild animals.

The coasts are fringed with groves of valuable cocoanut **trees** which are also largely cultivated in the lowlands in Trichinopoly, Coimbatore, and Mysore. From the fruit,

coir is extracted, spun into yarns and exported for the manufacture of mats and ropes. The inner part of the fruit, the copra, is the source of the cocoanut oil, used in cooking and the manufacture of soap. Besides the cocoanut palm, we find in our Province the palmyra and the date palm, and from all the three, toddy is obtained. Jaggery is obtained from the palmyra on the west coast.

We will now turn our attention to agriculture in which about seventy per cent of the whole population of the Madras

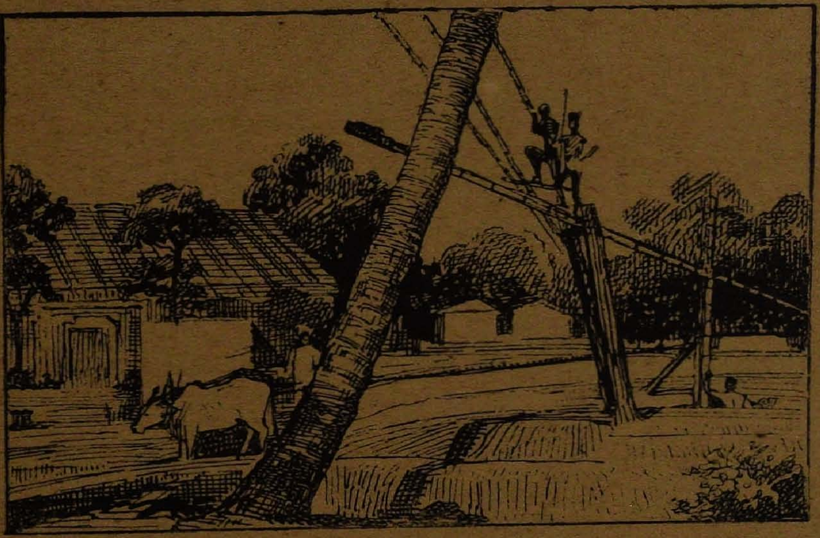


FIG. 9—IRRIGATION BY WELLS

Presidency is engaged. Agriculture is, of course, dependent on the soil and the amount of moisture. Wherever it is possible, irrigation makes up for the deficiency of rainfall. This can be carried on by means of **canals**; a dam or anicut is constructed across a river, and the water held up behind it, from which the water for the canals is drawn.

The best examples of anicuts are found on the Godavari at Dowlaishwaram, on the Kistna at Bezwada, on the Palar near Arcot, and on the Cauvery at Srirangam island. Looking at a survey map of a district, one is struck by the myriads of **tanks** spread over the mapped area; unfortunately most of them are dry in the hot season, and depend entirely on the monsoons and the local storms. There are more than 75,000 tanks in the Presidency, and some of them are of very great size, such as the Cumbum tank in the district of Kurnool, and the Marikanave and Kannambadi in Mysore. There are also countless artificial wells which may be divided into permanent and temporary. Various means are used for lifting the water from the **wells**, the best known being the **picottah** and the **Persian water-wheel**.

Most of the large rivers flowing into the Bay of Bengal have been dammed near their mouths, thus making the soil naturally fertile (alluvium) and productive of abundant crops. The greatest feat of engineering, performed in the Madras Presidency, is the diverting of the waters of the Periyar river, flowing into the Arabian Sea, to the Vaigai river, flowing into the Bay of Bengal. This was done by means of a dam 176 feet high, which closed the valley of the Periyar; the water thus stored was conveyed by a tunnel nearly two miles long to the Suruli river and thence to the Vaigai.

The Kannambadi reservoir, which is one of the most marvellous feats of engineering in the world, is situated about twelve miles from Mysore City. The work of construction was begun in 1912 with a view to give the Electrical Station at Sivasamudram the necessary water which it lacked during the hot season, and also for irrigation purposes. A dam was accordingly built across the river Cauvery, near the village of Kannambadi. It rises actually seventy-five feet above the bed of the stream,

but it is intended to complete it to a height of 120 ft. when the total length of masonry work will reach a mile.

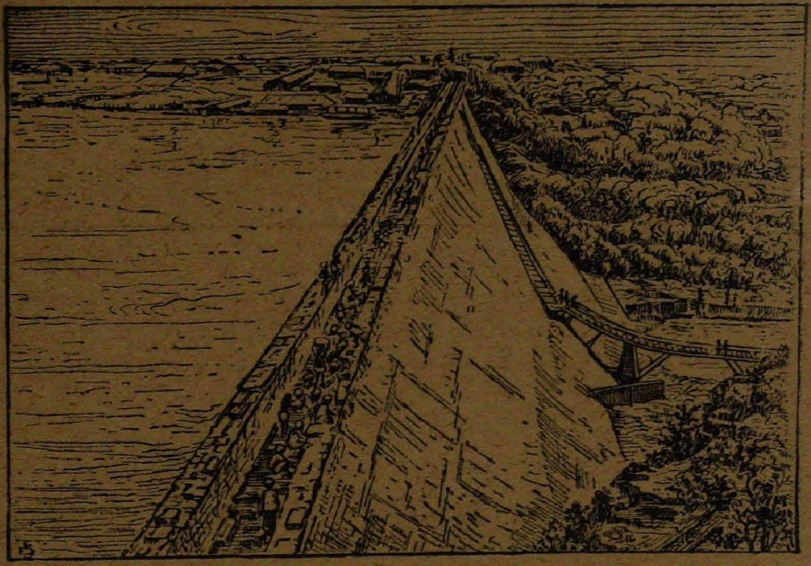


FIG. 10—THE PERIYAR DAM IN CONSTRUCTION

The impounding of the waters of the Cauvery has been highly beneficial to the surrounding districts, for about 5,000 acres of land are irrigated by two lower channels. It is hoped to extend this irrigated area to 100,000 acres with the completion of upper channels.

The water-spread surface is about twenty miles in length, and the whole area of this great reservoir will be about 24 sq. miles when brought to completion. Some objections were raised about this scheme by the districts south of it, for they thought that the construction of such a work would deprive them of the water necessary for irrigation. The surplus water is allowed out of the reservoir by special weirs and only the flood water stored at Kannambadi.

About one and a half crores have been spent up to the present day, the whole project, including a power-station, will cost about three crores.

The quality of the Soil or of the rocks is of great importance for the production of crops, each plant having its own requirements. Most of the soil of the Presidency is poor, being very rocky (gneiss, granite, schists) in the hilly and mountainous districts. Laterite is widely spread in Peninsular India, while in the north-west and in scattered patches over the rest of the Presidency is a clayey soil mixed with decayed and vegetable matter known as "regada' or black soil. The most fertile of all is the alluvial soil, composed of a coat of sediment, brought down by the rivers, and accumulated at their mouths and on their flood plains. It is a soft soil, easy to work and contains much nourishment for the crops raised on it.

We will now study the main crops of the Madras Presidency and examine the conditions of growth.

Cotton requires warmth not below 60° F., and a wet, but not too moist, climate. The plant thrives splendidly on what is commonly called black soil, which we have already mentioned. It is extensively cultivated in the Ceded districts, especially in Bellary, Coimbatore, and Tinnevelly, where the rainfall is scanty, these regions lying in the **leeward** side of the Western and Eastern Ghats.

FIG. 11—COTTON

Maize or Indian corn requires a high temperature with medium rainfall, long hot days and warm nights, deep, light, warm and rich soil. The maize belt in the world extends roughly between 50° N. to 40° S. One reason for such a wide range is its prolific yield (36 bushels against 18 of wheat per acre). It is found chiefly in Mysore, Salem, and all the southern districts between the Western and the Eastern Ghats.

FIG. 12—MAIZE.

Millets, such as cholam, a valuable fodder for cattle, kambu, and ragi, the staple food of the poorer classes and pulses such as dhal, gram also require a warm summer and a rich but friable soil. They are cultivated in the maize area.

Rice grows best in low-lying lands enriched by alluvial deposits. It requires plenty of moisture, either supplied by rain or by good irrigation. A high temperature (about 80°) is necessary for its successful growth. It is found

along the west and east coasts, especially in the deltas of the Cauvery, Kistna and Godavari.

Sugarcane requires heat, moisture and a low-elevation. The plant bears intermittent sea-breezes very well and thrives in a soil rich in lime. The cane is widely cultivat-

FIG. 13—RICE

FIG. 14—SUGARCANE

ed in Ganjam, Godavari, and South Arcot.

FIG. 15—COFFEE

Coffee prefers to grow in rocky ground (volcanic), especially when the cracks between the rocks are filled with decayed matter. It needs great heat and moisture, but, at the same time, requires protection against the heavy rains and violent winds so destructive at the time of blossom (April-May). This plant was extensively cultivated in the Presidency, but the competition with Brazil and a disease caused by a fungus have caused a great decrease in its cultivation. Coorg, Mysore, and the Shevaroy Hills in Salem are the few districts where the cultivation of coffee has not entirely given place to tea.

Tea seems to require a warm climate and a considerable amount of moisture, but the roots must not keep a great deal of this moisture around them; hence, the ground must be well drained, and the slopes of the hills offer the best ground. The quality and yield of the tea plant seem to depend on altitude: the higher the plantations, the smaller the yield, but the better the quality. The Nilgiri Hills and some parts of Travancore, and Malabar have large tea estates and factories.

Cinchona, a plant imported from America, whose bark is used in the manufacture of quinine, is also cultivated on the Nilgiris, the Government having a quinine factory at Naduvattam.

Cardamoms grow well on the higher parts of the Western Ghats, especially in the south.

Rubber. The chief kinds grown in India are: the cerea and the para. The former thrives best at high elevations with very moderate rainfall, while the latter prefers the hot, moist climate of the lowlands (Malabar and South Travancore).

Tobacco has a very wide range, but grows best in tropical and semi-tropical lands in districts comparatively sheltered from winds. This plant is largely cultivated in the districts of Madura, Ramnad, and Godavari.

FIG. 16—TOBACCO

Indigo which yields a beautiful blue dye is widely cultivated in Cuddapah and South Arcot.

Wheat, oats and barley, requiring a more temperate climate than rice and millets, are only grown in small quantities by some hill tribes on the Nilgiri Hills. There are some other vegetable products called

garden crops, such as the egg-plant, lady's fingers, onions, garlics, chillies, cabbages, potatoes, grapes, pears; on the high hills, melons, etc., they are grown in gardens round the towns for the use of the European population.

Before concluding this chapter, we must also mention two of the chief oils of Southern India. One is obtained from the ground-nut, of which large quantities are exported from South Arcot, and the gingelly oil used for culinary purposes.

FIG. 17—WHEAT

Other products besides tea, rubber and coffee not indigenous to India are grown successfully in tropical and sub-tropical regions, such as the pineapple, the cashewnut and the custard-apple.

FIG. 18—PINE APPLE

FIG. 19—PEPPER

CHAPTER VII—ANIMALS

The factors influencing their distribution are bound with the distribution of supplies of water and food. Some animals feed on flesh, others on vegetables and others on decayed materials. We will classify them here into wild and domesticated animals.

(*a*) **Wild animals**. Elephants run wild in the Anamalais and the forests of Coorg, Mysore, Wynaad, and the

FIG. 20—FAUNA OF THE MADRAS PRESIDENCY

1. ELEPHANT.	4. SAMBUR.	7. JACKAL.	10. CROCODILE.
2. TIGER.	5. BISON.	8. DEER.	
3. BEAR.	6. PANTHER.	9. MUNGOOSE.	

Western Ghats. This animal can be domesticated well enough, and becomes very useful in the lumbering industry. Tigers, panthers, and bears are to be found in the thick jungles. Bison and sambur live on the highest hills, such as the Nilgiri. Large herds of deer can be seen roaming on the tablelands or on low hills, while monkeys, jackals and mangooses live near almost every village. Crocodiles are found in the largest rivers, such as the Cauvery.

(*b*) **Useful animals**. Among the most useful animals, we must mention the cow, of which the best breed is to be found in the district of Nellore. Sheep are found in almost every district, but their wool is of inferior quality and rarely are they reared for that purpose. Goats are also numerous and are slaughtered in large numbers, their flesh being cheaper than mutton and not forbidden by some of the religious castes in India.

As a beast of burden, the Indian peasant uses the bullock, which is the strongest of all breeds of cattle. Most horses and ponies are imported, the former from Australia and the latter from Arabia.

The scope of this book does not admit of a longer description of the fauna of the Madras Presidency, but pupils should collect pictures of the largest animals, and keep in the School Museum good specimens of insects and reptiles of the Presidency.

CHAPTER VIII—MINERALS

Another source of wealth to the inhabitants of a country is found beneath the soil where often lie valuable deposits.

Gold, the most valuable of all, is found in the State of Mysore (Kolar); the quartz mined is crushed, and treated with chemicals to extract the precious substance. There are also some gold-bearing rocks in the district of Anantapur.

Alluvial gold is found in small quantities in the Wynaad and in the Nilgiri Hills.

Graphite or 'black lead,' used in the manufacture of pencils and polishing powder, is worked in Travancore, Godavari and Tinnevelly.

Manganese is one of the chief minerals exported from India to England and the United States, where it enters in the manufacture of steel, and as a colouring agent in the manufacture of glass and enamel. It is mined in Vizagapatam, Mysore, and in the Sandur State.

Mica in its various colours is quarried in very large quantities in the district of Nellore. The chief characteristics and value of this mineral lie in its transparency and its being able to resist sudden changes of temperature. It is used in the manufacture of photographic pellicules, window panes in places exposed to rapid changes of temperature, such as the peep-holes in smelting furnaces, stoves, lamp chimneys, etc.; more than 60 per cent of the world's production of mica comes from India and about 15 per cent from our Province.

Salt is not obtained from the ground as it is in Austria and Germany, but from the sea, especially in the shallow lagoons along the Bay of Bengal. The sea water is allowed into shallow pans which are banked for this purpose. Rapid evaporation leaves the salt which is then prepared under the supervision of the Salt Department.

Asbestos, a variety of hornblende, characterized by its long, separable, and elastic fibres, is found in Mysore and the district of Salem.

Corundum, one of the hardest minerals known next to the diamond, is widely distributed in Coimbatore, Salem, and Mysore. Owing to its hardness, metal-workers use it for abrading work.

Iron is found almost everywhere in the Presidency, but owing to the lack of coal and lime used in the smelting,

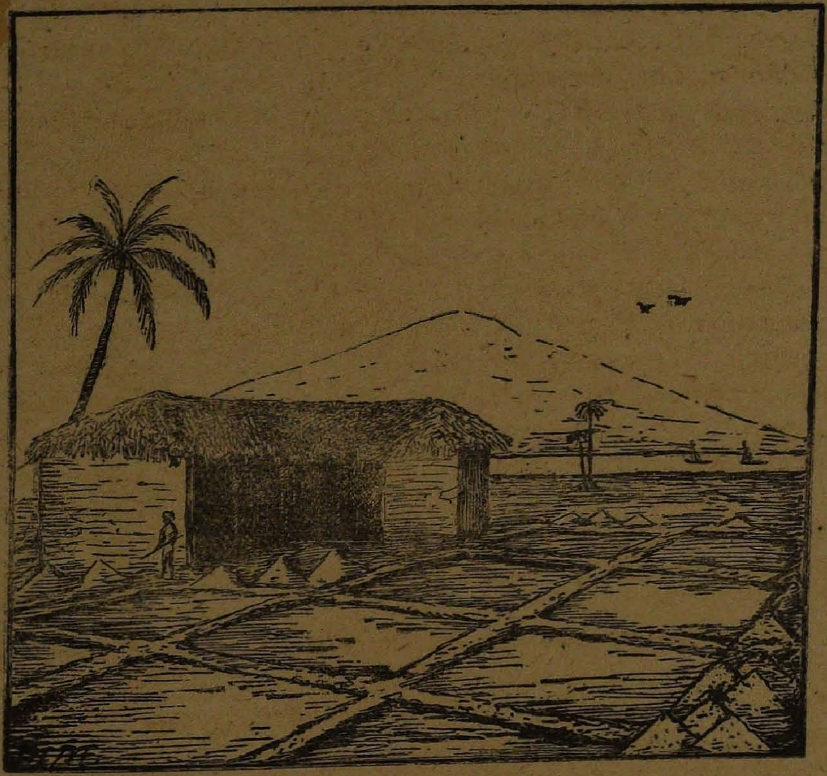


FIG. 21—A SALT PAN

this metal is not yet much worked, except in Trichinopoly, Salem, and South Arcot.

Magnesite, used in the manufacture of flooring tiles, plaster, and the lining of some furnaces, is mined in large quantities in Salem.

Models of the Taj Mahal, miniatures of temples and idols are often sold by travelling merchants; these are made of **steatite** or **soapstone**, obtained from the Kurnool district.

Out of the many building stones quarried in the Presidency, we may mention the beautiful **granite** found in almost every district, the **porphyry** of Mysore, the **sandstone** of Madras, the **limestone** of Coimbatore and Kistna, and the **Cuddapah slabs** chiefly used for flooring, obtained in the Ceded districts.

Laterite, often arising from the decomposition of volcanic rocks, is found in the Mysore Plateau, the West Coast and elsewhere, and is well adapted for building and roads.

Clay can be dug almost everywhere, but beds of fine clay occur along the West Coast, chiefly in South Canara, a fact which accounts for the tile industry carried on near Mangalore.

Note.—Specimens of the rocks mentioned above should be kept in the School Museum.

CHAPTER IX—OCCUPATIONS AND DENSITY OF POPULATION

FACTORS INFLUENCING OCCUPATIONS AND POPULATION

The chief factor influencing occupations and the density of population is **environment**. This general factor may be sub-divided into several others, the chief of which are :

(*a*) **Latitude** with its different climates. In some countries, like tropical Africa, Nature is too lavish, while in the frozen tundra, food is too scarce. The ideal conditions for settlement will therefore be found in temperate regions, where climate allows man to use all his activities to assist the work of Nature. India, our Presidency lying within the Tropics, does not afford much opportunity for European labour, so that most of the works are carried on by Indians.

(*b*) **Altitude**, especially in tropical countries, moderates the climate and consequently work can be carried on easily, provided the hills are easy of access.

(*c*) The places inland, far from the beneficial influence of the sea, are incapable of growing anything, but grass, except in areas where irrigation can be easily carried out, and where a special soil allows particular crops to be raised, such as the black soil of the Deccan.

(*d*) **Ease of access** is another important factor, especially in low-lying countries and well-watered regions, whose river navigation aided by railway communication render possible a rapid interchange of goods.

(*e*) **The presence of mineral wealth**, gold, silver, and other valuable and useful minerals, attracts a large population, and manufactures spring up.

We have already said that most of the population in the Presidency is engaged in agriculture; and a study of Chapter VI will show that the most densely populated districts will be found on the lowlands along the coasts. Naturally it will be denser round the large towns in order to supply all the needs of the people engaged in other branches of work.

Pastoral life is not carried on a large scale in the Presidency; this is an occupation which requires the fewest hands and large tracts of free land. With agriculture, population increases as more arms are needed; this is the case in the delta districts of the east coast. The population in the plantations amounts sometimes from 25 to 30 per square mile, but it is a floating one. The most thinly populated districts are to be found in the mountainous districts, where the only occupations are lumbering on the windward slopes and pasturing on the poor soil of the opposite slopes. (Bellary and Anantapur.)

The total population of the Presidency amounts to about 46,215,000 with the Feudatory and Native States. Of this population 89 per cent are Hindus, 6 per cent Mohammedans, 3 per cent are Christians, the rest belonging to other religions.

The growing of certain crops in particular areas has given rise to local manufactures, the establishment of large villages and towns in these favoured areas.

The Ceded districts grow cotton which is cleaned on the spot and sent to the **mills** of Bellary, Bangalore, and Madras, while the southern districts send theirs to the Mills of Madura, Coimbatore, and Tuticorin.

The growing of sugarcane accounts for the manufacture of **jaggery, molasses**, and **rum** at Aska in Ganjam, Samalkot in Godavari, and at Nellikuppam in South Arcot.

Dindigul, Madras, and Trichinopoly manufacture **cigars** and **cigarettes** from the tobacco plants grown locally and from leaves imported from the Dutch East Indies. The Lunka tobacco grown on the banks of the Godavari is exported to Burma through Cocanada.

The leather industry gives occupation to about 200,000 people in the Presidency. This industry includes, of course, several branches: tanning, boot and shoes and sandal manufactures, water-bags, well-bags, etc.

Brewing, which requires a cold climate, is carried on the Nilgiri Hills and at Bangalore from barley imported from Northern India. Tasmania supplies large quantities of the hops necessary for this industry.

Planting gives work to thousands of coolies in the Shevaroys, Nilgiris, Anamalais, and in Malabar, Coorg, and Western Mysore. The berries are often cured on the estates; but large quantities are sent to Mangalore, Calicut, Tellicherry and Coimbatore for this process. The tea leaf also is prepared in factories situated on the estates themselves (Travancore, Cochin, Malabar, and Mysore), and thus employment is given to coolies for the greater part of the year.

Besides these great branches of industry, there are indigenous arts, carried on in certain localities, which give work to a considerable population. Among these we may

FIG. 22—A TEA PLANTATION

name **hand-weaving and printing** carried on in Madras, Masulipatam, and Cocanada. Silk is woven into beautiful saris at Madras, Tanjore, Arcot, and Bangalore. The fine muslin manufactured at Arni is famous all over India. Vellore, Ellore, and Bangalore manufacture excellent carpets.

The brass industry has greatly declined, and most of the ornaments and articles made of brass come from Northern India, and Europe. There is still some important metal working at Tanjore, Tirupati, Palghat and Trichur (Cochin).

Carving ivory, sandal-wood, cocoanuts is an art largely carried on in the Presidency. The cabinets and caskets of sandal-wood made in Mysore are very elaborate, while the ivory carvers in Travancore and Vizagapatam produce articles which fetch a high price in the European markets.

Cocoanut carving is chiefly carried on in the districts along the West Coast. The district of Kurnool turns out lacquered ware (tables, caskets boxes, and trays) which outshine similar articles produced elsewhere in India.

This chapter on occupations would be incomplete if we did not say a word on the fishing industry which is more extensively carried on along the West Coast than along the east. This may be due partly to the relief of the land: the strip of coast and arable land not giving sufficient occupation to the people of these districts; and partly to the shallowness of the sea, especially between India and Ceylon.

The curing of fish, controlled by the Salt Department, is carried on at Calicut and in many villages along the coast of Malabar and Travancore. Some of the fish caught is packed and sent inland, or sent fresh in ice to the nearest railway station. Some are boiled for the sake of the oil. The sardines fished off the West Coast are very largely dried in the sun, and sold to planters who use them as manure.

The pearl fisheries of the Gulf of Mannar are a source of state revenue and give occupation to numerous Tamil and Arab divers. When a large number of oysters have been collected, they are kept in a godown or store-room, to allow the animal matter to decompose, after which the pearl is extracted and washed several times to get rid of the many impurities. The sacred **shank shell** which is used as a musical instrument in temples, and which can be cut into beautiful ornaments, is obtained in the Gulf of Mannar, off Tuticorin.

CHAPTER X—TRADE AND PORTS

The unequal distribution of commodities over the world has caused men to obtain the supplies they lack, in exchange for something they have in abundance.

Domestic trade is that carried on within the boundaries of a country which is under one Government ; that carried on between country and country is termed **foreign trade**, and includes imports and exports. Domestic trade is generally carried by road, canal, river or railway ; foreign trade finds its outlet through the harbours.

The chief commodities exported from our Presidency are, in order of importance, raw cotton, hides, and skins, castor seeds and ground-nuts, rice, coffee and tea, coir, copra, spices, ornamental woods, rubber and silk. The value of these articles amounts to about Rs. 20,00,00,000, the greatest part going to countries in the British Empire, and the United Kingdom, then to Ceylon and France, the rest being sent to other European and American countries.

In exchange for all these commodities, we receive cotton goods woven, printed and dyed in England, Germany and the United States ; sugar from the Dutch East Indies ; petroleum and rice from Burma, betel-nuts from Ceylon and many other articles of European manufacture, such as clothing, machinery, iron, and steel goods. The total value of imports far exceeds that of exports (about Rs. 35,00,00,000).

The Chief **harbours** of our Presidency are Madras, Tuticorin, and Cochin.

Madras, towards which converge the South Indian Railway, and the Madras and Southern Mahratta Railway, has naturally become important. It is the only harbour of the Presidency where ships can anchor safely. It is protected by two breakwaters 1,200 yards long, leaving an entrance about 500 ft. wide. It was begun in 1875.

In all the other harbours, ships lie at anchor several miles from the shore, piers having been erected in many cases to load the barges and rafts out of reach of the surf beating against our coasts.

The harbours of the west are practically closed to traffic during the S.-W. monsoon.

Tuticorin, owing to its position, chiefly trades with Ceylon, and many Indian coolies employed in the tea estates of that island emigrate through this harbour. Much of its trade, however, has decreased owing to the opening of the new extension of the South Indian Railway to Dhanushkodi, and steamer communication across the Gulf of Mannar.

Cochin lies on the shore of an extensive backwater connected with the sea, but the water is shallow and practicable only for vessels of light draught; besides, a sand bar prevents larger ships from entering it.

The other harbours on the west, Quilon, Alleppey, Calicut, Tellicherry, Cannanore and Mangalore, are the natural outlets of the agricultural lowlands, the rubber, and of the tea, and coffee estates of the middle slopes of the Ghats, Coorg, and Western Mysore. As we said already, they are mere roadsteads which afford no protection in stormy weather.

Immigration to Burma, the Strait Settlements and the East Indies takes place from Negapatam and Cocanada. The latter has good roadsteads, and has monopolized the trade of the deltas of the Kistna and the Godavari. The shelter given by the Dolphin's Nose gave rise to a proposal to establish a harbour at Vizagapatam, but so far it remains a roadstead.

CHAPTER XI—COMMUNICATIONS

Among the means of transport we have **human labour,** generally adopted in countries impracticable to animals (the dense tropical forests); or where other physical conditions make the use of animals impossible. This method is slow and not so advantageous as **transport by animals** that carry more goods and quicker than man.

All over the Presidency there are good roads, principally the trunk lines which are used by carts and lorries. The discovery of steam-power and the establishment of railways has much aided to the development of the districts through which they now pass. The first railways were established here towards the end of the nineteenth century. This method of transport is rapid, but more costly than any other, but rapidity compensates for the cost, especially in the case of perishable goods.

Transport by water (canals and rivers) is the cheapest and it is quite suitable for heavy and bulky goods. Unfortunately all our rivers are almost dry in the hot season, and the deltas, which necessitate constant dredging, have caused them to be unnavigable, except for short distances.

A. RAILWAYS

The railways of the Presidency belong to two systems: the Madras and Southern Mahratta (M. and S.M.), and the South Indian (S.I.R.).

(*a*) **The Madras and Southern Mahratta Railway.** This Company has several trunk lines all of which radiate from Madras and send smaller branches of narrower gauge. The north-west line connects Madras and Raichur, and is continued by the G.I.P. to Bombay. It passes through Arkonam, an important railway junction; Renigunta, from where a branch joins the line to Calcutta *via* Gudur. Leaving the plain of the Carnatic, it gradually climbs the Deccan tableland to Cuddapah, a very unhealthy town, the centre of the indigo cultivation. Crossing the Pennar, the main line passes through Guntakal, also connected with the eastern line *via* Guntur, and with the western line *via* Bellary and Hubli. Another branch runs from Guntakal to Bangalore. This region, known as the Ceded Districts,

is not fertile, as very little rain falls. Crossing the Tungabhadra, it enters the Nizam's Dominions, and on reaching Raichur, 350 miles from Madras, it is connected with the G.I.P. system to Bombay *via* Poona.

The second line connects Madras and Bombay, *via* Jalarpet, from which point it ascends the plateau of Mysore; the Gold Fields of Kolar are connected with the main line at Bowringpet, thence the main line proceeds to Bangalore, the 'City of Beans,' situated at an altitude of

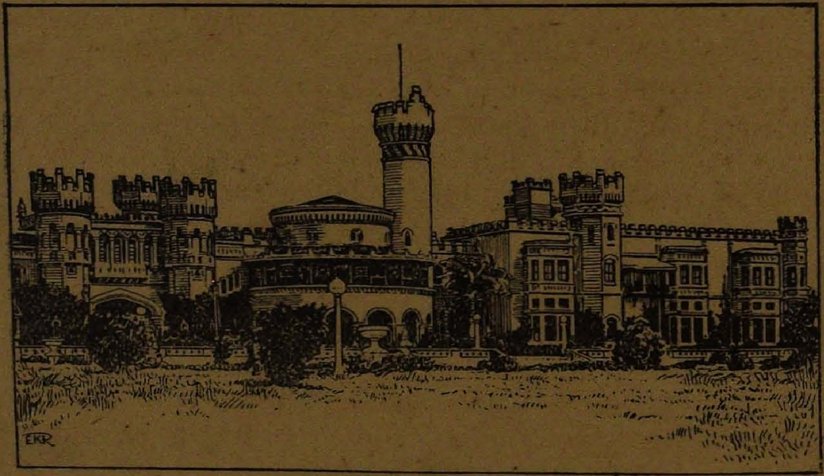


FIG. 23—MAHARAJAH'S PALACE, BANGALORE

3,013 ft. It has a pleasant climate, and beautiful parks. One part of it is an important Civil and Military station, the other is the city. It is the head-quarters of the British Resident, and the residence of the Maharaja of Mysore for part of the year. Bangalore is connected with Mysore and Nanjangod by the Mysore State Railway, which crosses he Cauvery near the historical island of Seringapatam.

From Bangalore the main line proceeds north-westward *via* Tumkur, Arsikere (connected with Mysore), Harihar and Hubli, meeting the G.I.P. at Poona.

The North-East line connecting Madras and Calcutta runs along the east coast between the Eastern Ghats and the Bay of Bengal, of which we may occasionally catch a glimpse. The first important stop is at Nellore on the Pennar. The whole of the country traversed is fertile, especially in the river valleys which are well irrigated. After passing Ongole, we enter the new district of Guntur, and at Bezwada, cross the Kistna by a bridge 3,600ft. long. This town has risen in importance owing to the construction of a great anicut at the head of the Kistna delta, and to the building of a railway which connects it with Guntakal and Hyderabad. From this point a short line runs to Masulipatam, the head-quarters of the Kistna district. We then catch a glimpse of the Colair Lake already described. The river Godavari is crossed before entering Rajahmundry, by a magnificent bridge one and a half miles long. At Samalkot, the centre of sugar refining, a branch runs to Cocanada, an important port trading with Burma. The M. and S. M. railway ends at Waltair, and is continued along the coast by the Bengal-Nagpur railway to Calcutta *via* Vizianagram and Berhampur.

(*b*) **The South Indian Railway**. This Company runs two trunk lines connecting Madras with the South and with the West Coast.

The first of these two lines follows the M. and S. M. as far as Jalarpet, calls at Salem, a town situated about six miles from the foot of the Shevaroy Hills. It is noted for its carpets, silk weaving and excellent cutlery. Crossing the Cauvery at Erode, the S.I.R. sends a branch to Trichinopoly. Should we alight at Podanur, we might go to Coimbatore, thence to Mettupalaiyam and ascend the Nilgiri Hills by a mountain railway as far as Ootacamund.

The main line, turning to the west, crosses the Western Ghats by the Palghat Gap, along the Ponnani river. At Shoranur it is joined by the Cochin State Railway, whose

FIG. 24—THE NILGIRI RAILWAY

terminus is at Ernakulam, on the backwaters. Running now along the west coast as far as Mangalore, *via* Calicut, a town manufacturing several kinds of cotton cloth, (from Calicut the first traders called the cloth collected there 'calico'), Tellicherry and the military station of Cannanore.

The second line followed by the 'Boat Mail' runs through the fertile plain of the Carnatic, touches at Chingleput, a place of pilgrimage, and where there is a Reformatory School. Villupuram is an important railway junction sending one branch to the French settlement of Pondicherry, and another to Katpadi on the Madras-Bangalore line (M. and S.M.)

At Cuddalore one can still see the old Fort St. David captured by Lally during the Seven Years' War. Crossing the Coleroon, the main line runs through the fertile delta of the Cauvery by way of Tanjore, the last capital of the Chola kings and famous for the Brihatiswaraswami temple and its gigantic stone bull. From this point the harbour of Negapatam can be reached by a short branch.

The chief feature of Trichinopoly is the 'Rock' rising to nearly 300 ft. and surmounted by a temple dedicated to Mathubutheswara.

The line describes now a vast curve, passing through Dindigul and Kodaikanal Road, where passengers alight for the Palni Hills. Madura, on the Vaigai river, is famous for the great temple of Sundareswara and the Palace of Tirumala Naik. From there a branch runs to Tuticorin through Maniyachi, a railway junction, connected with the West Coast by a line crossing the Western Ghats at the Ariyankavu Pass, touching at Quilon, and having its terminus at Trivandrum.

From Madura the main line strikes south-east, along the Vaigai river, passes Ramnad, Mantapam, and ends at Dhanushkodi on Pamban island. A shallow passage, about twenty miles broad, separates the Indian terminus from Mannar island, from where the journey to Colombo can be continued by train.

B. CANALS

When studying the west coast of our Presidency, we mentioned the series of **backwaters** stretching from Trivandrum to Cochin. Most of them have been connected by canals, which, south of Quilon, in the State of Travancore, pass through two tunnels. The largest of these brackish expanses of water is that of Vembanad in Travancore, measuring over thirty miles. Traffic is carried on by means of native boats, propelled by poles and sails; passengers can go from Quilon to Cochin by motor and steam-boats of shallow draught. Other backwaters are found in the Malabar district, but they are of less extent than those in Travancore and Cochin.

The **Buckingham Canal**, much frequented by flat-bottomed boats carrying cargoes of fire-wood and salt

FIG. 25—THE LOCK OF THE KISTNA CANAL, BEZWADA

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runs quite close to the east coast, from Merkanam, south of Madras, to the river Kistna.

Another canal, used chiefly for irrigation, has been dug in the Ceded Districts of Kurnool and Cuddapah, connecting the Pennar and the Tungabhadra.

CHAPTER XII—PEOPLE, RELIGIONS, LANGUAGES

The majority of the inhabitants of our Province is formed of **Dravidians**. Some authors, however, have found traces of pre-Dravidians among several tribes in the mountainous districts of Coorg, the Nilgiris, the Anamalais (Kadirs and Kurundas), and the Northern Circars (Sawaras).

The **Hindus**, who are the most numerous (about nine-tenths of the whole population), are divided into four great branches: priestly or Brahman, military or Kshatriya, trading or Vaisya, and Sudra.

The Brahmans, who are the highest socially and intellectually, are divided into two main great religious sects according to the deity they worship. The Jains, chiefly found in Mysore and South Canara, trace their origin from the sixth century B.C. The Lingayats, numbering about 40,000, are found mostly in the Ceded Districts.

The non-Brahman Hindus are divided into a host of castes, which include every possible profession in social life.

The **Mohammedans**, who form about 6 per cent of the population, are either immigrants from other parts of India or from Arabia, or are Hindus converted to the Islam.

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The **Christians** include the Roman Catholics, the Syrians, and the Protestants. About a thousand Jews, whose origin remains obscure, are to be found in the native town of Cochin. Most of the hill tribes are neither Hindus;

Mohammedans, Christians nor Jains, but they worship local spirits.

We have already said that the bulk of the population of the Madras Presidency is represented by the Dravidian race. There are five principal Dravidian languages: **Tamil**, spoken by 16,000,000, is chiefly located in the districts south of Madras, along the east coast. The Western Ghats, the Nilgiri Hills and the Mysore State form its western boundary. The next language is **Telugu**, spoken by about 15,000,000, in the districts north of Madras as far as Ganjam. A line passing through Bangalore, Guntakal, and Wadi would separate the Telugu districts from those where **Canarese** is spoken by about 5,500,000.

In Travancore, Cochin and Malabar, **Malayalam** is spoken, while **Tulu** is the principal language in South Canara. **Hindustani** is spoken by a part of the Mohammedan population in every district.

Several hill tribes, such as the Todas and Badagas in the Nilgiris, speak a language which is not found elsewhere

Immigrants of Indo-Aryan origin have kept their own languages, such as **Marathi** in Bellary, **Konkani** in South Canara, Cochin and South Travancore.

CHAPTER XIII—HISTORY

Vasco da Gama, a Portuguese sailor, came twice to India, and in 1502 made a settlement at Cochin. This news induced the Government of Portugal to found a great Empire in the East. Constant expeditions were accordingly sent to India to realize this idea. **Almeida**, the first Viceroy in India, in 1505, and **Albuquerque, da Cunha, Castro** and **St. Francis Xavier** may be considered the pioneers of Portuguese influence in South-West India. Their names still survive in the western districts of the Presidency.

The eighteenth century saw the downfall of this Eastern Empire, for the Portuguese were soon unable to compete with the Dutch and the English companies. Trade between England and India began with the first Royal Charter issued in 1600, when Queen Elizabeth established an **East India Company.** About the same time we find the **Danes** settled at Tranquebar.

The establishment of the East India Company at Surat was followed by other Settlements. In 1639 **Francis Day** built Fort St. George, which was raised to the rank of a separate Presidency in 1653.

The **French** also made attempts to settle in India during the time of Louis XIII (1642), and of Louis XIV (1664). Pondicherry, which had been taken by the Dutch, was restored to them by the Treaty of Ryswick in 1699. They also settled in Malabar at Mahe.

The foundation-stone of the present Madras Presidency was laid by **Robert Clive**, the great rival of Dupleix, who took Arcot and relieved Trichinopoly, defeating the French army. The victory at Wandiwash in 1760, the capture of Pondicherry the next year, and the fall of Masulipatam made the English masters of the Northern Circars.

The first **Mysore War** waged by the English against Hyder Ali was not successful, and had no other effect than to increase the debt of the Government. While England was engaged in the War of American Independence, war was renewed in Mysore. Colonels Baillie and Braithwaite were surrounded and taken prisoners by Hyder Ali. **Sir Eyre Coote**, the victor of Wandiwash, won the battles of Porto Novo, Pollilor, Sholinghur, and Arni, and made peace with Hyder's son, Tippu, in 1784.

Tippu having refused to leave Travancore which he had attacked, **Lord Cornwallis**, the successor of Warren Hastings, declared war. The capture of Bangalore and of Seringapatam mark the second stage towards the

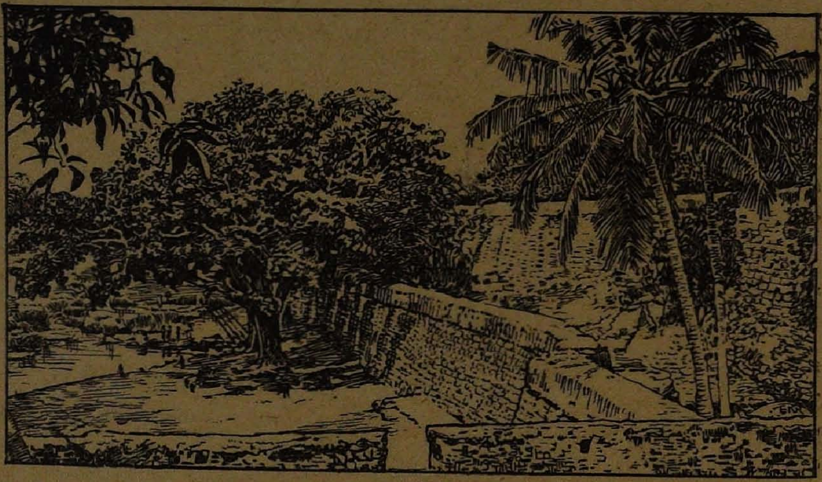

FIG. 26—THE FORT, SERINGAPATAM

completion of the Madras Presidency. To the Northern Circars, taken by Clive, were now added Malabar, Salem, and Madura.

In 1791, Tippu refused to receive a messenger sent by **Lord Wellesley**, who had written to the chief rulers in India, asking them to recognize the British as the supreme power. War was declared and two armies invaded the Sultan's dominions; it ended with the second fall of Seringapatam which brought in South Canara and Coimbatore together with the Wynaad. In 1800 the Nizam handed over the four districts known as the Ceded Districts and Lord Wellesley took Tanjore, which was left without a ruler. This completed the Madras Presidency.

PART II

REGIONAL GEOGRAPHY

CHAPTER I—DIVISIONS AND ADMINISTRATION

When Mr. Montagu came to India in 1918, he travelled in many parts of the country and, after six months, made with the Viceroy, Lord Chelmsford, a report which was to be laid before both the Houses of Parliament at Westminster. The result of Mr. Montagu's visit was that the Government of India Act was passed in 1919, by both the Houses, and granted to our country during the visit of His Royal Highness the Duke of Connaught.

According to the present Constitution, the administration of the Presidency is invested in the Governor, assisted by an Executive Council of four members, half of whom are Indians. Besides there are Indian ministers elected from the Legislative Council.

For the purpose of making laws, the Governor presides over a Legislative Council composed of the four ex-officio members of the Executive Council and men, most of whom are elected by the people, and the rest nominated by the Governor. The administration of revenue is carried out by the Board of Revenue.

Politically, the Presidency is divided into twenty-four districts. At the head of each of these divisions is the Collector and the Sessions Judge. Each district is divided into taluqs, whose chief officer is called tahsildar.

The scope of this book does not allow us to devote much space to a detailed study of each of these districts. By judicious use of the maps, and frequent reference to the General Geography of the Presidency, pupils will be in possession of the material needed for the study of these districts, which we shall group as follows :—

1. **The Northern Circars :** Ganjam, Vizagapatam, Godavari, Kistna and Guntur.

2. **The Ceded Districts :** Anantapur, Bellary, Kurnool and Cuddapah.

3. **The Carnatic Districts :** Nellore, Chingleput and South Arcot.

4. **The Central Districts :** North Arcot, Chittoor, Salem, Coimbatore, Trichinopoly and Nilgiris.

5. **The Southern Districts :** Tanjore, Madura, Ramnad, and Tinnevelly.

6. **The West Coast Districts :** South Canara and Malabar.

Madras City, having its own Collector, may be termed a district.

Attached to the Presidency are the Protected States of Travancore, Cochin, Pudukkotah, Sundur, and Banganapalle. The first two States administer themselves under the control of a British Resident. The Collectors of the districts adjoining the other three States act as their political agents. Mysore State is immediately under the Government of India, the British Resident in Mysore is also the Chief Commissioner of Coorg

THE DISTRICTS OF
MADRAS PRESIDENCY
And
COMMUNICATIONS
REFERENCE TO NAMES OF DISTRICTS
I. Ganjam
II. Vizagapatam
III. Godavari
IV. Kistna
V. Guntur
VI. Bellary
VII. Kurnool
VIII. Cuddapah
IX. Anantapur
X. Nellore
XI. Chittoor
XII. Chingleput
XIII. North Arcot
XIV. South Arcot
XV. Salem
XVI. Trichinopoly
XVII. Tanjore
XVIII. Ramnad
XIX. Madura
XX. Tinnevelly
XXI. Malabar
XXII. Nilgiris
XXIII. Coimbatore
XXIV. South Canara
Boundaries of Districts
Boundaries of the Presidency
Berhampur
Waltair
Vizagapatam
Rajahmundry
Cocanada
Bezwada
Masulipatam
Guntur
To Hyderabad
To Bombay via Raichur
To Bombay via Hubli
Kurnool
Bellary
Guntakal
Anantapur
Dharmavaram
Cuddapah
Nellore
Gudur
Renigunta
Pakala
Arkonam
Madras
Vellore
Chingleput
Shimoga
Arsikere
Hassan
Mangalore
Bangalore
Hosur
Jalarpet
Coorg
Mysore
Nanjangud
MYSORE
Cannanore
Tellicherry
Calicut
Shoranur
Ootacamund
Coimbatore
Podanur
Erode
Salem
Villupuram
Pondicherry
Cuddalore
Mayavaram
Trichinopoly
Tanjore
Negapatam
Ernakulam
Madura
TRAVANCORE
Danushkodi
To Ceylon
Ramnad
Manyachi
Tuticorin
Quilon
Trivandrum
Tinnevelly

FIG. 27

CHAPTER II—THE NORTHERN CIRCARS

Description. These five districts lie between the sea and the Eastern Ghats. They consequently fall into main divisions: the plain between the Bay of Bengal and the foot of the mountains; and the mountainous regions of the west, with Mahendragiri as the highest point. The plain is very narrow in the north, where the Eastern Ghats almost border the sea, but it broadens as we travel southwards, and is of remarkable fertility, especially in the deltas which are well irrigated. Chilka Lake, an expanse of water 44 miles long, lies near the boundary between Ganjam and Orissa, and the Colair Lake, already mentioned, is situated in the district of Kistna. The Eastern Ghats, which reach about 5,000 feet, are cut by deep gorges through which flow the Godavari and the Kistna. They are inhabited by some wild tribes, the chief of which are the Khonds and the Savaras, speaking Kui and Sawara, a Kolarian language, respectively.

The Northern Circars are watered by the Rishikuliya, the Vamsadhara, the Nagavalli, the Godavari and the Kistna.

As a rule, the climate of these districts is hot from March to September, but cool on the Ghats. It becomes more pleasant with the coming of the north-east monsoon, in October; the rainfall averages 40 inches.

Resources. Rice, cholam, ragi and kambu are largely cultivated in the well-irrigated areas. Sugarcane is found in almost every district, especially near Aska in Ganjam and near Samalkot in Godavari. Tobacco grows best in the Godavari district. Cotton weaving is an important occupation in Guntur and Vizagapatam; Chicacole, in Ganjam, specializes in the manufacture of fine muslins; Ellore, in Godavari, manufactures carpets.

CHIEF TOWNS.

Berhampur (31,455) is the head-quarters of the Ganjam district. It has a healthy climate; trades in sugar; and manufactures gold-wera and silk cloth.

Ganjam lies at the mouth of the Rishikuliya and trades chiefly in salt made in the lagoons along the coast.

Gopalpur is the chief seaport of the Ganjam district.

Aska has a sugar-refinery and an arrack distillery.

Vizagapatam (40,892) is the head-quarters of the district, and a sea-port sheltered by the headland of Dolphin's Nose. It exports jute, manganese, and jaggery. The carving of ivory done in the district is reputed to be the best in India.

Waltair, just north of Vizagapatam, is a delightful station, and is for this reason called the 'Brighton of India.'

Vizianagram derives its name from Viziarama Razu, the founder of the town; it is the residence of the Maharaja.

Cocanada (50,000) is the head-quarters of the Godavari district, and the most important port on the coast north of Madras. It exports cotton, oil-seeds, sugar, rice, and tobacco. Its roadstead is one of the safest, but it is gradually silting up.

Rajahmundry is an important commercial centre at the junction of road and river traffic. Much of the salt made on the coast, the rice grown on the delta, and the timber floated down the river from the forests of the interior are shipped there.

Ellore is famous for its carpets; the ruins of an old fort may be seen near the town; three miles away is the site of the ancient Vengi.

Dowlaiswaram is a sacred spot situated about six miles from Rajahmundry; it is at the head of a canal system of the Delta, and has a large workshop for the P.W.D.

Masulipatam (40,000) is the residence of the Collector of the Kistna district. This town was held in turn by the Portuguese, the Dutch, and the French. Carpets and palambore cloths are manufactured there.

Guntur (about 30,000) is the administrative headquarters of the Guntur district; it has an active trade in grain and cotton.

Mangalagiri is a busy town in the fertile district of Guntur; it contains two famous shrines to Vishnu, and an ancient rock-temple approached by a flight of some 500 steps.

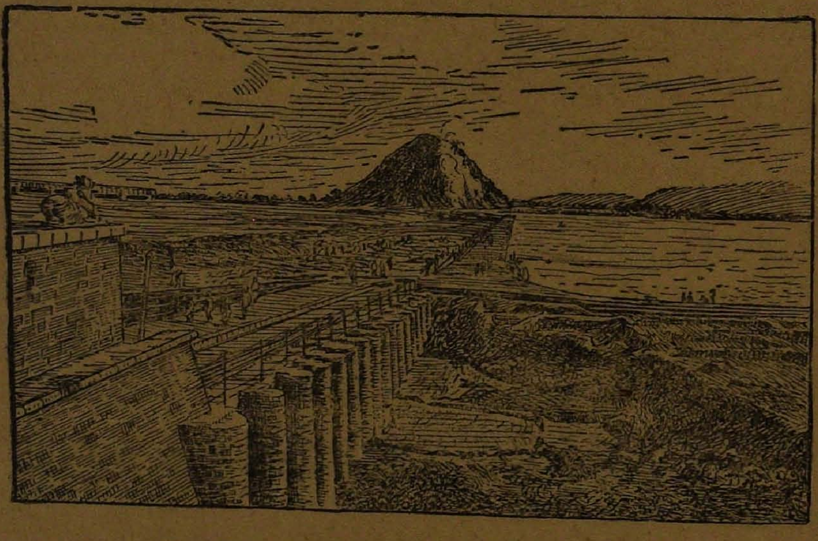

FIG. 28—THE KISTNA ANICUT, BEZWADA

Bezwada. Near this town was built a great anicut to regulate the course of the river Kistna. Bezwada owes its importance to its position at the head of a delta. Several railway lines converge towards it, and it is also the starting-point of several canals. The town contains rock-cut temples of the Buddhist period, and many ancient Hindu pagodas.

CHAPTER III—THE CEDED DISTRICTS

Description. These four districts are situated on the Deccan tableland, between the Western and the Eastern Ghats. On the east are the Nallamalais, the Yerramalais and the Velikonda Hills. It is in this hilly area that the Cumbum tank, which has a capacity of 3,696 million cubic feet, lies. The Palkonda Hills divide the district of Cuddapah into two well-marked portions, the east being wooded, and the west, as far as the boundary between Anantapur and Mysore containing the black soil suitable for cotton cultivation. The western extremity of the Ceded Districts has a desolate appearance whose monotony is broken by isolated masses of rocks called ‘droogs’.

The northern boundary of these districts is formed by the Tungabhadra and the Kistna. The North Pennar flows in the south, the two rivers being connected by the Cuddapah-Kurnool Canal, which is of no use in the hot season.

Being far away from the sea, and shut off from its influence by the Ghats, the climate is hot, and the average rainfall does not exceed 28 inches. Anantapur is the driest of the four districts.

Resources. Cotton is extensively grown on the black soil, most of it being exported to the mills of Bombay and Madras. There are some local manufactures of carpets. Towards the east, and wherever irrigation is possible, millets, sugarcane, ragi, cholam, and a little rice are grown. The deposits of iron, copper, and lead in Bellary, and a little gold in Anantapur, have increased the revenue of these districts. The indigo grown in the Ceded Districts is considered to be the best in the Presidency.

CHIEF TOWNS.

Kurnool (25,300) lies at the confluence of the Tungabhadra and Hindui rivers. It is the head-quarters of the

district. The mausoleum of Abdul Wahab, the first Nawab of Kurnool, is one of the chief features of the place. Good carpets are also manufactured there.

Cumbum. Not very far from this town is the famous tank which was made by building a dam across the Gundlakamma river.

Nundyal is the centre of the manufacture of lacquered ware ; it contains nine Saivaite pagodas.

Cuddapah (16,400) is the administrative head-quarters of the district. It has a bad reputation for malaria fever.

Anantapur (7,900) is the head-quarters of the district.

Gooty lies at the foot of an almost impregnable fortress, known as Gooty Rock.

Tadpatri deals in cotton and cloth. There are here temples whose bas-reliefs picture the adventures of Rama and Krishna.

Penukonda has ruins of a fort built on a hill about 3,000 ft. high.

Bellary (58,000) is the head-quarters of the district and a military station. There is a fort built on a hill 450 ft. above the surrounding country. Though the heat is great, Bellary is considered to be much healthier than Cuddapah and Anantapur. Iron, copper, antimony, and alum are found in the neighbourhood.

Adoni is a great centre of the cotton trade. The chief feature of the town is the Jumma Musjid, a fine specimen of Mohammedan architecture.

Hospet, about seven miles from this place, are the ruins of Hampi, the ancient capital of the Vijianagar kings. The visitor who gazes on the ruins of the palace, stables, and temples, may imagine the grandeur of this ruined city in bygone days.

CHAPTER IV—THE CARNATIC DISTRICTS

Description. These three districts lie in the Carnatic plain, and are bordered by the Eastern Ghats and their spurs (Velikonda, Kalrayen, and Jawadis). The coast is low and sandy, and the surf beats heavily against it. Between the sea and the mainland are several backwaters and to the south of the district of Nellore is the Pulicat Lake. Much of the country consists of large expanses of stony and sandy wastes covered with a coarse grass. It is watered by the Pennar, across which an anicut has been built, thus making irrigation possible. The Palar, the Coom, the South Pennar, the Coleroon separating South Arcot from Tanjore, and the Vellar are the principal rivers.

The climate is hot, but healthy; the mean annual rainfall, supplied by the N.-E. monsoon and the cyclonic depressions on the Bay, amount to 37 inches.

Resources. Cholam, rice, and indigo are largely cultivated; salt is obtained from the backwaters and exported to Madras by the Buckingham Canal. There are local industries, such as the manufacture of mats from the coir fibre obtained from the cocoanut groves along the coast. Nellore is famous for its breed of cattle, exported to Burma, the Malay States, and the Dutch East Indies.

CHIEF TOWNS.

Nellore (32,000), on the Pennar, is the administrative head-quarters of the district. Like most towns in these districts, it has been successively in the hands of the Mohammedans, the Dutch, and the French.

Ongole has a very large annual fair, where fine specimens of cattle can be seen. There are also two temples dedicated to Vishnu and Siva.

Conjeeveram, the 'Benares of the South,' is the most sacred town in South India. Its most important temples

FIG. 29—A NELLORE BULL-CALF

are dedicated, one to Siva, another to Vishnu, and a third to Kamakshi, the wife of Siva. Besides these temples, there are many sacred tanks, whose waters are believed to cleanse the souls of those who bathe in them.

Saidapet (7014) is only 5¼ miles from Madras and is the head-quarters of the district of Chingleput. It has a Teachers' Training College.

Chingleput is the seat of a Reformatory School. There are ruins of a fort built towards the end of the seventeenth century. A few miles from the town is the shrine of Tirukalikundram. Passengers for the Seven Pagodas alight here.

Pulicat was formerly a Dutch settlement now fallen into decay. The chief feature of the town is the cemetery, where beautiful tombs can still be seen.

Gingee is famous for its three forts situated on three hills. The citadel built on the summit of Rajagiri is inaccessible, except from the north by a small bridge spanning a mound 60 ft. deep. The other two hills, Kistnagiri and Chandrayan are connected with the citadel by a wall. These forts abound in relics of bygone days: the Audience Chamber, the cannon, and the prisoners' well attract the attention of every visitor.

Cuddalore (56·574) is the head-quarters of the South Arcot district. The ruins of the old Fort St. David, which for a time was one of the strongholds of Tippu, may still be seen.

Chidambaram is famous for its temple where both Siva and Vishnu may be worshipped together. This temple and dependencies are said to cover an area of 40 acres, the chief features being the Hall of one thousand pillars, the golden-tank, and a huge stone bull.

Villupuram is an important railway junction, sending branches to Katpadi and Pondicherry.

MADRAS CITY

Madras, the capital of the Presidency, is the seat of the Government. It is the third largest city in India with a population of a little over half a million. Most of the offices, banks, and head-quarters of every department are located there. With its suburbs, it covers an area of 27 square miles. The business quarter of Madras is George-town, formerly called 'Black Town'. The Banks, Custom House, the High Court and other offices are situated in this part of the town. South of these is Fort

FIG. 30—THE LAW COURTS, MADRAS

St. George, built in 1639 by Mr. Francis Day, and subsequently extended till 1787. In the same portion of Madras City are the Government House and offices, the Presidency College, and the Senate House. Along the Beach is the 'Marina' which, with Mount Road, forms the principal thoroughfares of Madras.

To describe all the chief features of the town and suburbs does not enter into the scope of this little manual; but

picture post cards, plans, and guides will supply the pupil with necessary information.

The climate is hot from March to September and the breaking of the N.-E. monsoon, the average rainfall amounts to 50 inches.

We have already said a word about the harbour, and the railway lines converging towards the city, which bring all the commodities from the interior. The chief exports are coffee, cotton, grain, hides and skins, and oil-seeds. Articles of European manufacture, oil, and rice from Burma form the chief imports.

CHAPTER V—THE CENTRAL DISTRICTS

Description. These five districts are all inland. North Arcot and Chittoor are crossed from the north-east to the south-west by the Eastern Ghats (Nagari Hills and Jawadi Hill). Most of the district of Salem, especially in the north and south-east is hilly (Shevaroy, Kabrayens). The plains are found between these ranges and along the Cauvery river which separates Coimbatore from Salem on the west. The Eastern Ghats, converging towards the Nilgiris, cross the district of Coimbatore by a double ridge of heavily-forested hills. The Trichinopoly district is flat, with isolated rocky masses such as the 'Rock'. The Nilgiri district is a tableland on an average of 6,000 ft. high, crowned by Dodabetta; the ascent from Coimbatore is rather steep but can be done by a good winding road and a mountain railway from Kallar to Ootacamund. The northern slopes, overlooking the forests of the Wynaad, are crossed by a good road passing through Naduvattam and Gudulur. There are some hill tribes in the Nilgiri district: the Badagas, the Todas, the Kotas, the Irulars, and the Kurumbas; they live, with the exception of the last two named, an agricultural and pastoral life.

The chief river of these central districts is the Cauvery, already described, and its tributaries are the Vellar and the Palar.

The climate on the whole is warm, but the heat is greatly moderated on the hilly districts, on the Nilgiris especially, as one may see in the table given in Chapter V. The N.-E. and S.-W. monsoons supply them with water the rainfall being, of course, heavier on the west. The annual rainfall of all the districts with the exception of the Nilgiris (50 inches) amounts to 36 inches.

Resources. The chief crops are ragi, rice, cholam, hemp and cocoanuts. Indigo, betel, cotton, and tobacco are also largely cultivated. North Arcot and Chittoor are famous for their mangoes and oranges, while the plantations on the Shevaroy hills yield good coffee. Tea and cinchona are cultivated on the higher slopes of the Nilgiris The manufacture of carpets is a speciality of Wallajapet in North Arcot; brass vessels are made at Tirupati. Trichinopoly manufactures cigars from the plant grown in the vicinity of Dindigul and from imported leaves. Coimbatore has two large cotton mills, and Salem manufactures excellent cutlery.

CHIEF TOWNS

Vellore (49,756) is noted for its fort and temple. The fort is a fine specimen of military engineering; it is built of granite stone. It is said to have been built during the thirteenth century; within the citadel is a temple having a 'gopuram' about 100 ft. high.

Chittoor (49,700) is the head-quarters of the district. It has two Hindu temples attracting numerous pilgrims during the month of May. Granite and bulpum stones are quarried there.

Arcot, on the Palar, manufactures silver-ware and gold lace. It was formerly the capital of the Nawabs of the

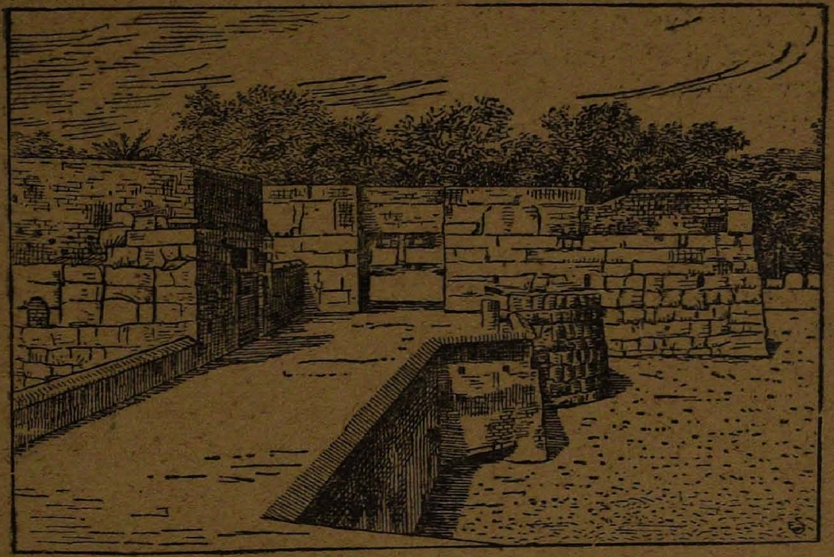

FIG. 31—ENTRANCE TO THE FORT, VELLORE

Carnatic. The Palace and the fort which were the scene of Robert Clive's exploit in 1751 are now in ruins.

At **Wandiwash** was fought a battle during the Seven Years' War, when Sir Eyre Coote defeated the French forces.

Arkonam is a railway junction, where the line from Madras to Bangalore meets the N.-W. line to Bombay.

Tirupati is famous for its hill temple, frequented by pilgrims, especially during the month of September. This temple which is one of the richest in South India is reached by a flight of stone steps. Many of the inhabitants of the town are engaged in carving sandal-wood and engraving copper plates.

Near **Chandragiri** is the Rajah Mahal, built entirely of granite. It was there that in 1640, the Rajah of Chandragiri, in consideration of yearly rent, granted to Mr. Day the site on which the city of Madras was founded.

Arni was the scene of a battle in which Sir Eyre Coote defeated Hyder Ali in 1782.

Salem (59,153) is the head-quarters of the district; it has very productive mines of iron and magnesite. Good carpets and excellent cutlery are manufactured there.

Yercaud lies on the Shevaroy Hills, 4330 ft. above sea-level, amidst coffee and tea gardens.

Near **Hosur** is one of the largest Remount Depots in India.

Krishnagiri has an ancient fort built, it is said, by the Nawabs of the Carnatic.

Coimbatore (47,000) is the administrative head-quarters of the district; it has important cotton mills, and Forest and Agricultural Colleges.

Coonoor is a hill station lying at an altitude of 5,600 ft. The climate is equable, and preferable to that of Ootacamund. There is a Pasteur Institute where persons suffering from dog-bite are treated. A mile from Coonoor is the military station of **Wellington**. At **Aruvankadu** is a Cordite Factory.

Ootacamund is the terminus of the Nilgiri Railway, at the foot of Dodabetta, and several other hills reaching a height of 8,000 ft. During the hot season it becomes the residence of His Excellency the Governor of Madras and his staff.

Trichinopoly (123,512) is the head-quarters of the district. The chief feature of the town is the ‘Rock,’ on the top of which stands a temple dedicated to Tayumanavar. Close to the Rock is the Nawab's Palace, now used as a Town Hall. Chanda Sahib's tomb may be seen near the Fort. On the island of Srirangam is one of the largest and richest temples of South India dedicated to Vishnu. Half a mile to the east is another temple dedicated to Siva.

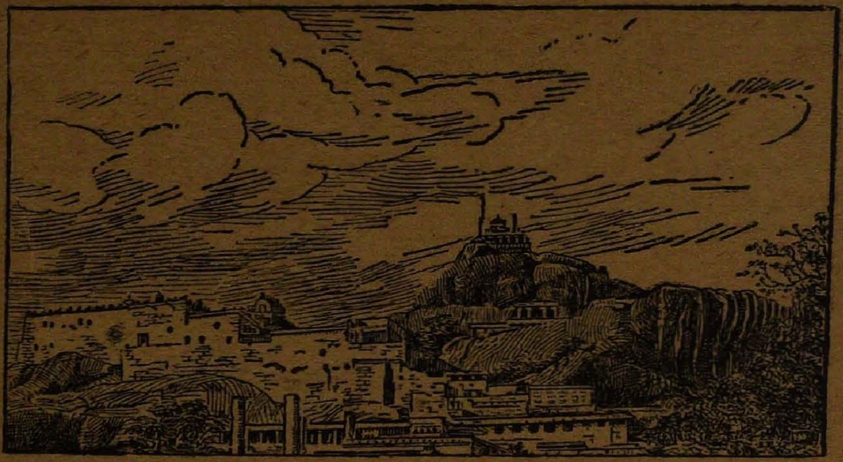

FIG. 32—THE ROCK FORT, TRICHINOPOLY

CHAPTER VI—THE SOUTHERN DISTRICTS

Description. These four districts lie in the plain bordered in the east by the sea, in the north by the last spurs of the Eastern Ghats. The Western Ghats (Anamalais and Cardamoms Hills) separate Tinnevelly from the State of Travancore.

Tanjore is justly termed the 'Garden of South India' owing to its fertility. The district of Ramnad ends in the Ramnad promontory, separated from the low, sandy island of Rameswaram by the Pamban channel. The island is connected by a chain of sand-banks known as Adam's Bridge.

The chief rivers are the Cauvery, the Coleroon, the Vaigai, and the Tambraparni. The damp heat of these districts is enervating, and Europeans spend the hot season on the hill-station of Kodaikanal in the Palni Hills. The rainfall averages 32 inches in the plains, but is greater in the mountains of the west.

Resources. Tanjore, the most fertile of these districts, grows large quantities of rice and betel. On the coastal margin there are extensive groves of cocoanut trees. There is also in this district manufacture of silver and brassware, silk cloth, and carpets. Tobacco grown in the vicinity of Dindigul is exported to Trichinopoly, part of it being manufactured on the spot. The soil of Tinnevelly, especially in the north, is suitable for the growth of cotton; while in the red soil of the south flourishes the palmyra.

CHIEF TOWNS.

Tanjore (60,300) is the head-quarters of the district. The great temple called Brahadeshwara was built under the Chola kings in the eleventh century. It is entered by a 'gopuram' 90 ft. high. In one of the courts of the temple is a huge stone bull, 16 ft. long and 12 ft. high. The Palace is situated in the Great Fort, and a statue of Sivaji may be seen in the Durbar Hall. The library contains 18,000 manuscripts in Sanskrit and a bust of Nelson. Subramanya's temple is a fine specimen of Hindu architecture and stone carving.

Kumbakonam, another important town of the Tanjore district, is a sacred town possessing sixteen temples, of which twelve are dedicated to Siva and four to Vishnu. The Mahamakam tank is reputed to be one of the most sacred in South India; some 4,00,000 people are said to be present at the festival held once in twelve years. This town is also a great centre of learning.

Negapatam is a port carrying an extensive trade with Ceylon, Burma, the Strait Settlements, and the Dutch East Indies. It exports rice, cattle, ground-nuts, copra, chillies, and imports timber, iron and steel goods, betel, and sugar.

Madura (134,130) manufactures delicate muslins inter-woven with gold lace. There is a temple partly dedicated

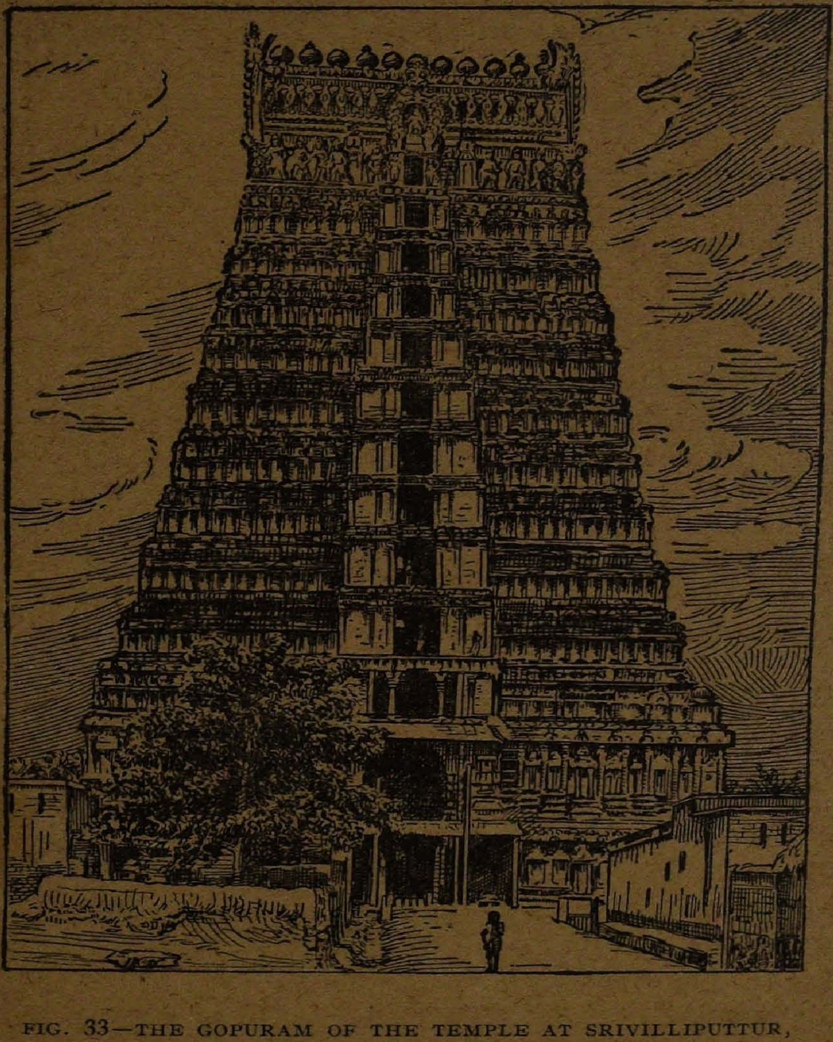

FIG. 33—THE GOPURAM OF THE TEMPLE AT SRIVILLIPUTTUR, THE HIGHEST IN SOUTHERN INDIA

to Siva and partly to Minakshi. The Palace of Tirumala Nayakka is partly utilized by offices and courts.

Dindigul manufactures cigars from the plants grown locally and from imported leaves. Dindigul Fort is built on a rock rising 1,223 ft. above sea-level, the fortifications added to it by Hyder Ali can still be seen.

Ramnad (15,000) is the residence of the Collector.

At **Rameswaram** there is a temple dedicated to Siva, which is held most sacred by all Hindus.

Dhanushkodi is the terminus of the South Indian Railway. A service of steamers links the pier with Talaimannar across Palk Strait.

Tinnevelly (44,805) is separated from Palamcottah, the head-quarters of the district, by a bridge across the Tambraparni. There are several sugar-mills which turn out a large quantity of jaggery.

Tuticorin is connected with Colombo by a service of steamers, the passage takes about 16 hours. There is a salt factory and a spinning mill. Off the coast are important pearl and conch fisheries.

CHAPTER VII—THE WESTERN DISTRICTS

Description. These two districts lie between the Arabian Sea and the Western Ghats. The mountains are covered with dense forests yielding excellent timber; their base is covered with an almost impenetrable jungle which is the home of wild animals. The narrow strip of plain reaching, on an average, a breadth of sixty miles, is very fertile, and watered by many small streams rising in the Ghats. Among them we shall name the Ponnani and the Netravati. Rice is largely grown, and everywhere along this coast and the numerous backwaters, cocoanut trees grow in countless numbers.

The whole country has many remains of the Portuguese occupation (church architecture, language, names, and surnames). The district of Malabar has perhaps the

highest percentage of Mohammedan population in the Presidency, most of them being Moplahs.

The climate is hot and enervating. The rainfall is supplied by the S.-W. monsoon, and it averages 120 inches in the plains, and over 200 inches in certain parts of the mountains.

Resources. Rice is by far the most important crop, other grains are not cultivated to a large extent. The forests of the Ghats yield excellent timber which is floated down the rivers during the monsoon. Coffee, tea, and rubber are grown on the slopes of the Ghats together with pepper. The chief articles exported through the western ports are coir, copra, coffee, pepper, areca-nut, and cardamoms. There are some good fisheries off the coast. Weaving is carried on at many places, e.g. Calicut, Cannanore and Mangalore. A fine clay dug in the alluvial soil near the river-beds, especially near Mangalore, has given rise to tile works. This industry, like that of weaving, is due to the initiative of the former Basel Mission.

CHIEF TOWNS.

Mangalore (48,400) is the head-quarters of the district of South Canara ; it has tile factories, engineering, weaving, and printing works. The town stands on a backwater formed by the Netravati and Gurpur rivers.

At **Udipi**, thirty-seven miles north of Mangalore, there is a temple dedicated to Krishna attracting numerous pilgrims once in every two years.

Calicut (78,417) is the chief town of the district of Malabar, and a sea-port through which pepper, timber, rubber, coir are largely exported. Weaving and tile-making are the chief industries.

Cannanore, which was visited twice by Vasco de Gama in his voyages to India, is a military station, and has a large weaving industry.

Palghat owes its importance to its situation on an opening in the Western Ghats through which roads and railway must necessarily pass.

Manantoddy is the most important town in the Wynaad and lies amidst coffee plantations and thick forests.

British Cochin is situated on a strip of land between the backwater and the sea. Ship-building is carried on there.

CHAPTER VIII—THE PROTECTED STATES

I. TRAVANCORE

Description. This State is situated in the south-west of the Peninsula; it has an area of 7,129 square miles and a population of 3,500,000. It is administered by the Maharaja assisted by a Dewan, or Prime Minister, and a Council. The sub-divisions have at their head a Dewan Peishkar. The British Government is represented by a Resident, who, in this State, is also the Collector of Tangasseri, a small territory near Quilon. The chief features of this state are the extensive backwaters stretching along the coast. They are connected by artificial canals which enable boats to go from Trivandrum to Cochin.

Travancore is reached from the east through the Ariyankavu Pass. The mountains attain their greatest height in this State, Anaimudi being the loftiest peak.

Resources. As in Malabar and South Canara, there are countless cocoanut groves. The other most important products are rubber, pepper, and coffee; ivory forms a source of State revenue and has given rise to ivory carving in several parts of the State. The forests yield valuable timber. There are fisheries off the coast and on the backwaters.

CHIEF TOWNS.

Trivandrum (63,561) is the capital of the State, the residence of the Maharaja, and the British Resident. In the Fort there is a pagoda which attracts large numbers of pilgrims.

FIG. 34—BACK WATERS, QUILON

Quilon has spinning mills, coir-rope making, and ship-building.

Alleppey is another harbour on this coast connected with Cochin and Quilon by the backwaters.

Kottayam is the centre of the Syrian community.

II. THE STATE OF COCHIN

Physically and economically, it resembles Travancore and Malabar. It is watered by the Ponnani and the Periyar. Large quantities of rice, coir, copra, and rubber are exported through Cochin. As in Travancore, the administration is conducted by the Maharaja and his Dewan. The State is reached from the east by the Cochin

State Railway, starting from Shoranur on the S.I.R. It has an area of 1,361 square miles and a population of 920,000. The British Resident in Travancore is at the same time the Political Agent in Cochin.

Ernakulam, the capital, lies on a back water, opposite the town of Cochin. Six miles away is **Tripanithurai**, where the Maharaja resides during the greater part of the year.

Cochin, across the back water, is divided into Mattancherry, the Jewish town, and British Cochin.

FIG. 35—THE BACK WATERS, COCHIN

Trichur has a large temple dedicated to Vadakunnathan, and a sacred College.

III. STATE OF PUDUKOTTAI

It is bounded in the north and west by Trichinopoly, on the east by Tanjore, and on the south by the district of Ramnad. This State has an area of 1,178 square miles a a population of 411,800. The Collector of Trichinopoly acts as Political Agent to represent the British Government

in this State. The administration is carried on by the Maharaja, assisted by a Dewan, and, as in the State of Travancore, there is a Popular Representative Assembly. The residence of the Maharaja is at Pudukottai, the chief town of the State.

IV. THE STATE OF BANGANAPALLE

It is composed of two detached portions situated within the Kurnool district. It has an area of 255 square miles, and a population of 39,300. The chief occupations are agriculture, lac cultivation and weaving. The chief crops include rice and cholam.

The ruler of this State bears the title of Nawab and belongs to the sect of the Shisti.

V. STATE OF SANDUR

This small State is almost surrounded by the district of Bellary, whose Collector is the Political Agent. It has an area of 161 square miles and a population of 13,500. Manganese and iron of excellent quality abound in the State. Cholam forms the staple crop.

Ramandrug, 3,500 ft. above sea-level, is a sanatorium.

CHAPTER IX

I. MYSORE

nd population. 29,641 square miles, and 5,705,359 ants.

ription. The State is administered by the Maha- esiding in Mysore, assisted by a Dewan, a Privy cil, and a Legislative Council. Twice a year there eetings of the Representative Assembly. The State ivided into districts, at the head of which are the

Deputy Commissioners; the Amildars are the chiefs of taluqs. Unlike Travancore, Cochin, and the other Protected States, Mysore is not connected with the Government of Madras, but with the Government of India. The British Reisdent in Mysore is at Bangalore.

The State of Mysore is surrounded by the Madras Presidency, except in the north, north-west, and south-west. It falls into two divisions: the Malnad, or hilly country in the west, and the Maidan or plains in the east. The former is heavily forested, and, owing to this fact allied to elevation, it has a good rainfall. The Maidan is broken here and there by isolated masses or rocky hills termed droogs which were once strongly fortified. A ridge running from west to east forms the water-parting between the basin of the Cauvery and that of the Kistna. This part is the most unfertile portion of the State, and supports only a pastoral population.

The Western Ghats, which border a part of the State on the west, reach their greatest height in Kudremukh (6,200) in South Canara. Mullinagiri Peak (6,317) is situated in the north-west in the Bababudans, a spur thrown in the interior by the Western Ghats. The main water system in the State is the Cauvery and its tributaries, flowing towards the south. The Tunga and the Bhadra flow towards the north, uniting to form the Tungabhadra. The other rivers are the North and the South Pennar and the Palar. There is only one stream flowing into the Arabian Sea: th Sheravati, which breaks through the Western Ghat famous Gersoppa Falls. Irrigation is practicable parts of the State by channels drawing the water fr main rivers. Elsewhere it is carried out by storing in tanks, of which there are more than 40,000, the l being the Marikanave.

Owing to its elevation Mysore enjoys a cooler cli than any other part of the lowlands in the Presidency.

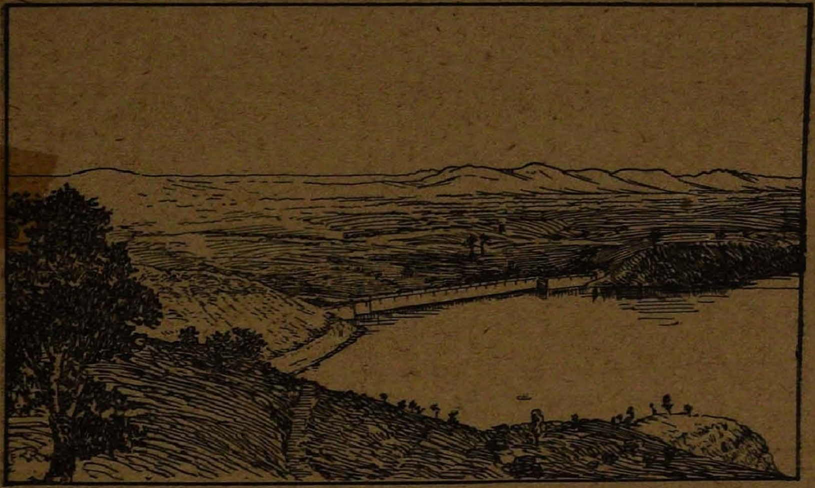

FIG. 36—DAM OF THE MARI KANAVE, MYSORE STATE

rainfall supplied by both monsoons is, of course, heavier in the west than on the east.

Resources. Nearly three-fourths of the population are engaged in agricultural pursuits. The chief crops include rice, millets, gram, and sugarcane. Cotton is grown in the north and north-east. Next to gold-mining carried on in the Kolar district, the chief source of revenue is the silk industry. The manufacturing industries include silk filatures, cotton and woollen mills, tanneries, flour mills, sandal-oil factories. Coffee is grown on the lower slopes of the Ghats and in the Bababudan Range.

of the State, is situated at the foot
owned by a temple where pilgrims
li. It is the residence of the
University.

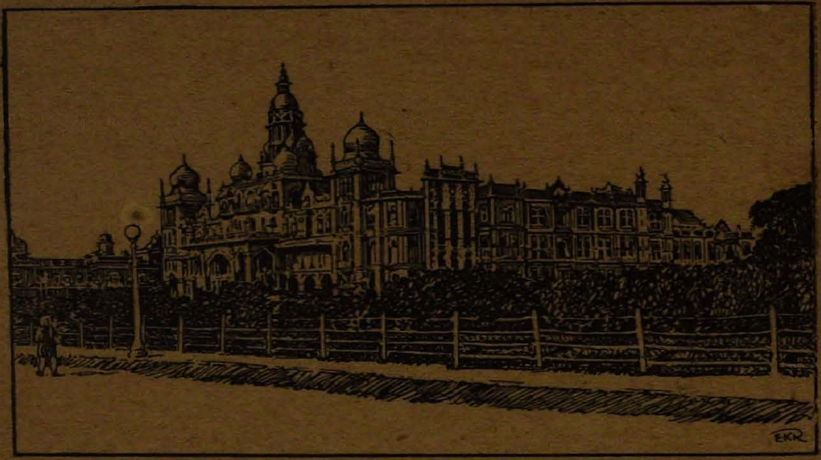

FIG. 37—THE MAHARAJAH'S PALACE, MYSORE

Nanjangud connected with Mysore by railway is famous for its temple of Nanjundeswara.

Nine miles from Mysore is the historical town of **Seringapatam**, which was the capital under Hyder Ali and his son Tippu. The ruins of the fort and the tombs of Hyder Ali and his son are still seen.

Bangalore has a population exceeding 100,000. It is noted for its excellent climate. The town which is divided into the Cantonment and the City has very fine parks and public gardens. The Maharaja of Mysore has a Palace.

Kolar Gold Fields, sixty miles from Bangalore, has mines giving employment to some 30,000 people.

Chitaldroog in the north of the State has a fort now partly used as a cutchery. The Arklimath, or underground chambers, attract many visitors.

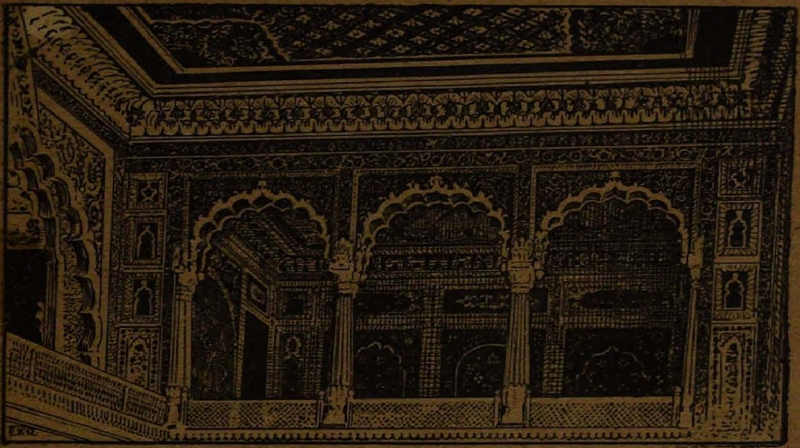

FIG. 38—INTERIOR OF THE PALACE, SERINGAPATAM.

II. COORG

This British Province is administered by a Deputy Commissioner under the control of the British Resident in Mysore. It is bounded in the north and east by Mysore; and on the west by South Canara and Malabar. It is very mountainous as it lies mostly on the western slopes of the Western Ghats, which send numerous spurs separated by fertile valleys.

Owing to the altitude the climate is cool, but the rainfall is heavy, exceeding 100 inches; this accounts for the thick forests on the mountain slopes and the thick jungle at their base. In several places they have been cleared to give place to coffee plantations. Rice is grown in the ... ny cases have been made into terraces ... nning along the slopes. The Cauvery ... s rise in South Coorg.

... reached from the west by good ... re and Mangalore.

The Coorgs form a distinct race with a dialect and dre‹ of their own. They number about 40,000.

Area of the Province 1,582 square miles.

Population.—1,74,976.

The chief town **Mercara** is the residence of the Commissioner. It has a fort and palace built by a former Rajah, Virarajendra Raja, and about two miles from the town are the Rajahs' tombs.

FIG. 39—RAJA'S SEAT, MERCARA, COORG, WITH DISTANT VIEW OF THE W. GHATS

APPENDIX

We give here a weather chart as a model to pupils. The keeping of such charts is possible in ev
it is equipped with a weather-coc
home-made), a barometer, and a
thermometer. By comparing suc
learn useful points in connec

district. We also recommend the use of graphs to illustrate the amount of rainfall and the curve of the temperature. Such records should be kept in the archives of the school or in the Museum for further reference.

A WEATHER CHART.*

School ....
District ....
Month ....

* Kept at St. Joseph's College, Bangalore, for the month of August

Date	Max Temperature	Min. Temperature	Direction of the Wind and Pressure		Rain-fall	Rain from 1st of Jan.
1	81°1 F.	66°8 F.	26·90	W.-S.-W.	0·05	15·47 inches.
2	79°6 F.	66°6 F.	26·88	W.	...	15·47 ,,
3	80°6 F.	65°9 F.	26·88	W.-S.-W.	0·56	16·03 ,,
4	81°8 F.	65°3 F.	26·87	W.-by-S.	0·44	16·47 ,,
5	83°1 F.	65°6 F.	26·87	W.-by-S.	0·09	16·56 ,,
6	85°3 F.	65°2 F.	26·90	W.	...	16·56 ,,
7	80°4 F.	66°5 F.	26·86	W.	0·08	16·64 ,,
8	80°9 F.	65°9 F.	26·88	W.-S.-W.	...	16·64 ,,
9	82°3 F.	66°8 F.	26·88	S.-W.	...	16·64 ,,
10	80°6 F.	66°6 F.	26·83	S.W. by W.	...	16·64 ,,
11	77°0 F.	65°8 F.	26·86	S.-W.	0·06	16·70 ,,
12	79°0 F.	65°8 F.	26·86	S.-W.	...	16·70 ,,
13	82°9 F.	64°8 F.	26·90	W.	...	16·70 ,,
14	82°0 F.	65°1 F.	26·89	W.-by-S.	...	16·70 ,,
15	84°9 F.	65°6 F.	26·92	W.	...	16·70 ,,
16	84°1 F.	66°8 F.	26·90	W.-S.-W.	...	16·70 ,,
17	82°5 F.	66°6 F.	26·85	W.	...	16·70 ,,
18	83°4 F.	64°4 F.	26·85	W.-S.-W.	...	16·70 ,,
19	82°1 F.	66°8 F.	26·85	W.-by-N.	...	16·70 ,,
20	85°1 F.	66°2 F.	26·84	W.	0·04	16·74 ,,
21	82°9 F.	66°2 F.	26·85	W.-S.-W.	0·34	17·08 ,,
22	83°6 F.	65°2 F.	26·86	S.-W.	0·13	17·21 ,,
23	84°0 F.	65°2 F.	26·86	S.-W.	...	17·21 ,,
24	87°3 F.	65°8 F.	26·81	W.-by-S.	...	17·21 ,,
25	85°3 F.	[illegible]	26·85	W.	0·23	17·44 ,,
[illegible]	[illegible]	[illegible]	6·89	W.	0·10	17·54 ,,
[illegible]	[illegible]	[illegible]	·91	W.-N.-W.	0·01	17·55 ,,
[illegible]	[illegible]	[illegible]	34	W.-N.-W.	0·08	18·63 ,,
[illegible]	[illegible]	[illegible]	[illegible]	N.-W.	0·47	19·10 ,,
[illegible]	[illegible]	[illegible]	[illegible]	W.	...	19·10 ,,
[illegible]	[illegible]	[illegible]	[illegible]	W.	2·75	21·85 ,,

SOME TYPICAL QUESTIONS ON THE MADRAS PRESIDENCY

PART I—GENERAL GEOGRAPHY

CHAPTER I—IV

1. What is meant by natural and artificial boundaries? Are there such boundaries in the Madras Presidency?

2. Explain the meaning of valley, mountain range, spur, pass, plateau, gorge. Give an example of each of these physical features in the Presidency. Make clay models of them.

3. Mention the advantages and disadvantages of the Western Ghats on the coast of Malabar.

4. Compare the coastal plain on the east with that on the west.

5. Give a description of the Godavari river under the following heads:—Source, relief of the country traversed, chief tributaries, occupations of the people living on its bank, positions of the mouths.

6. What do you infer from the fact that the Deccan slopes towards the east?

CHAPTER V—VI

1. How does the nearness to the sea affect the climate of a place? Illustrate your answer from examples taken in the Madras Presidency.

2. Why does Madras get most rain in November, and Calicut in June?

3. Why is Bangalore cooler thar[illegible] The

4. Distinguish between a tr[illegible] climate. How is it that, thoug[illegible] the tropics, some parts of it e[illegible] climate? Name places to [illegible]

5. Write notes on continental and insular climate, and pressure.

. How would you proceed to construct a home-made n-gauge ?

7. What is the influence of the Western and Eastern hats on the climate of the Presidency ?

8. If you wished to grow coffee, tea, sugar, maize, coanut palms, what kind of country would you choose each case ? Give reasons for your answers.

9. Where is irrigation absolutely necessary in the sidency ? What are the different means to irrigate a ?

. What is an anicut ? Give the positions of four uts in the Presidency.

CHAPTER VII—X

What factors determine the density of population ?

ompare the life of people engaged in agriculture ose leading a pastoral life. Give examples.

ite notes on laterite, black soil, alluvium.

which districts of the Madras Presidency are the ving industries carried on:—Weaving, brewing, coffee-ing, fishing, sugar-refining, etc. Give reasons for your iswers.

CHAPTER X—XII

1. Write notes on domestic and foreign trade.

2. What would a steamer touching at Cochin, Nega-im, Cocanada take up as cargo ?

An is transferred from Tuticorin to Bellary. nan travel to reach his new post ? country traversed, and name a few urney.

he various stages in the forma-
ncy.

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5. Explain the meaning of Resident, Collector, Dewan Tahsildar (Amildar). What are the attribution of each these officials ?

6. Describe the religious practices of primitive tri in your neighbourhood.

PART II—REGIONAL GEOGRAPHY

1. Describe the district in the Madras Presidency State in which you live, under the following head Relief, chief rivers, products and means of communica

2. Show how geographical circumstances have c the rise and importance of Bezwada, Madras, Trichin etc.

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